July 28, 1958

Paper Trade Journal

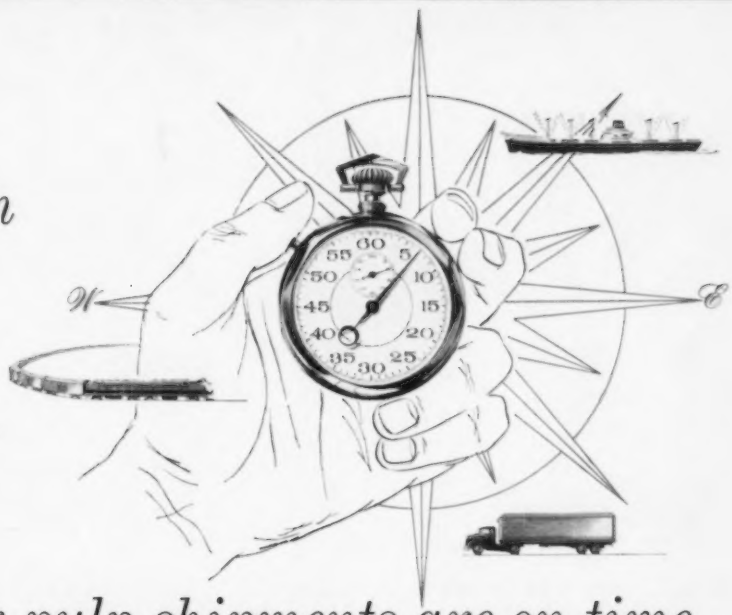
Horizontal Size Press Installations Show Versatility, Many Advantages

Chillicothe's New Paper Machine Incorporates Latest Design

'Little' Machines Play Big Part at C.Z's Antioch Plant

University Microfilms
Att: E B Power
313 N First St.
Ann Arbor, Mich.

When Gottesman enters the picture...



...your pulp shipments are on time

Making sure your pulp shipments leave on schedule is only one facet of expert Gottesman service—but it's crucial to pulp buyers. At Gottesman, over 70 years' experience in pulp assures you of the finest attention to quality and detail, regardless of pulp grade or quantity. That's why so many of our customers have been with us so long, some over 40 years.

The Gottesman Organization

Established 1886

GOTTESMAN & COMPANY, INC. • CENTRAL NATIONAL CORPORATION
CENTRAL NATIONAL COMMERCIAL COMPANY, INC.
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WOOD PULP

PULP PAPER EXPORT

Gottesman & Company Aktiebolag, Stockholm, Sweden • Central National-Gottesman Limited, London, England • Representatives in 55 Leading World Markets

HOW YOUR PLANT CAN PROFIT FROM THIS MAN'S SKILL. Dowell engineers are experts in the use of chemical solvents to remove scale and sludge—those profit-robbing deposits that cut the capacity of your process systems, tanks, piping. Using the Dowell method of chemical cleaning you get more throughput, less down time—to make possible greater overall plant efficiency.

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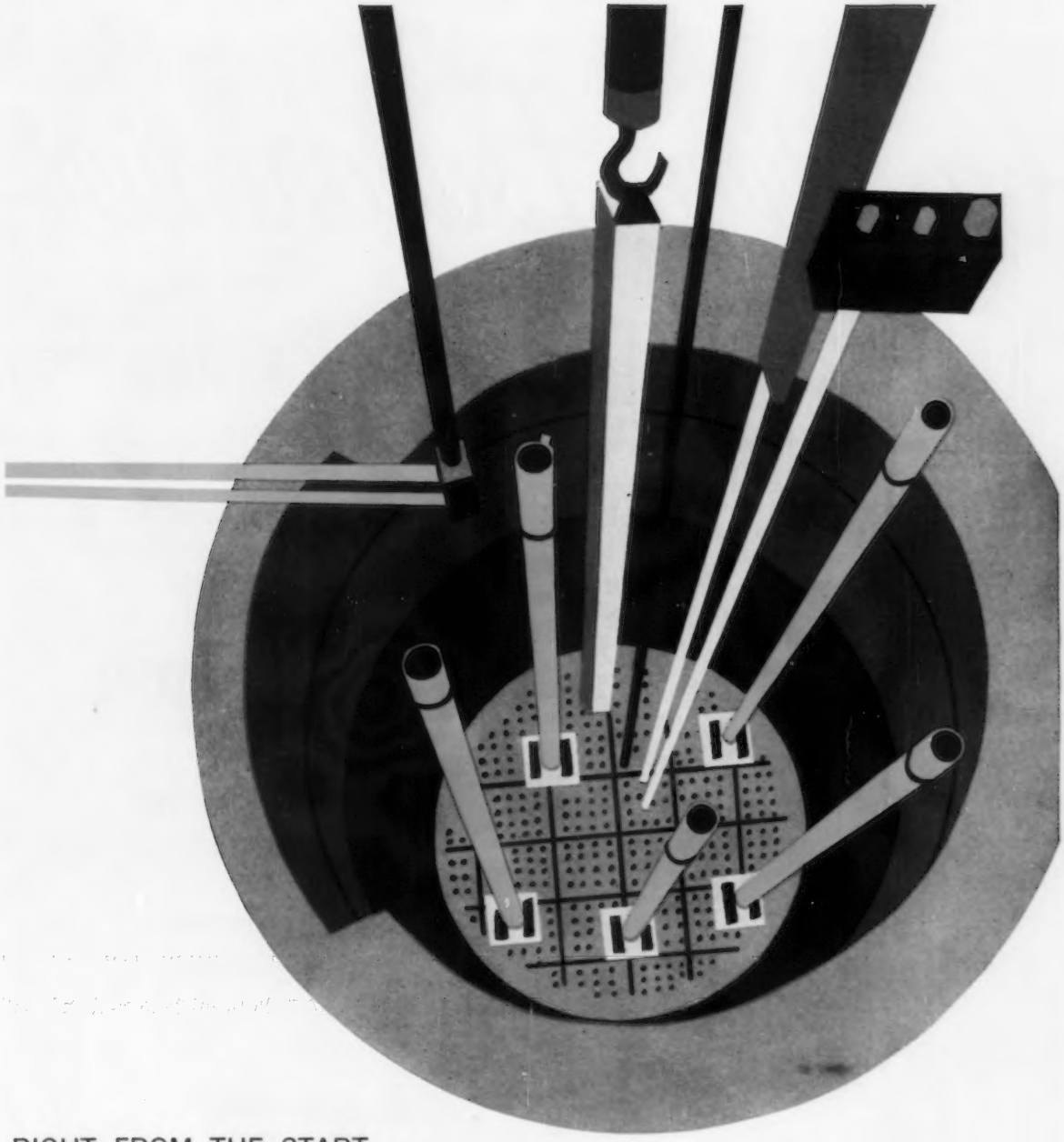
Total cost of this mill scaling service was $5000. Once in production the plant did not have a single major shut-down for maintenance due to mill scale. Management of the plant credits Dowell service with helping them net an operating profit of somewhere between 10 and 20 times the cost of the chemical cleaning. That amounted to between $50,000 and $100,000 the first year.

With Dowell service you get 15 years experience in chemical cleaning, full lines of equipment and chemicals—plus an engineered job—performed by trained crews.

Every type of industry can profit from Dowell methods of chemical cleaning. Ask your maintenance and operating engineers if they have all the facts—the profit possibilities—on Dowell service. DOWELL—A SERVICE DIVISION OF THE DOW CHEMICAL COMPANY. Headquarters and research center, Tulsa, Oklahoma; 165 offices and stations to serve you.

Chemical cleaning services for industry DOWELL



RIGHT FROM THE START . . .

When piping costs come close to the million mark — when the installation is vast, and the leeway for error is small — a piping job must be right from the start to finish. Grinnell assures this through complete one-company control and responsibility. From interpretive engineering — through exclusive methods of prefabrication and testing of pipe and hanger units — to precision assembly and delivery, the job is all done by Grinnell, as only Grinnell can do it. The result: installations of any size, at costs known before you start, with assured performance. Grinnell Company, Inc., Providence, R.I.

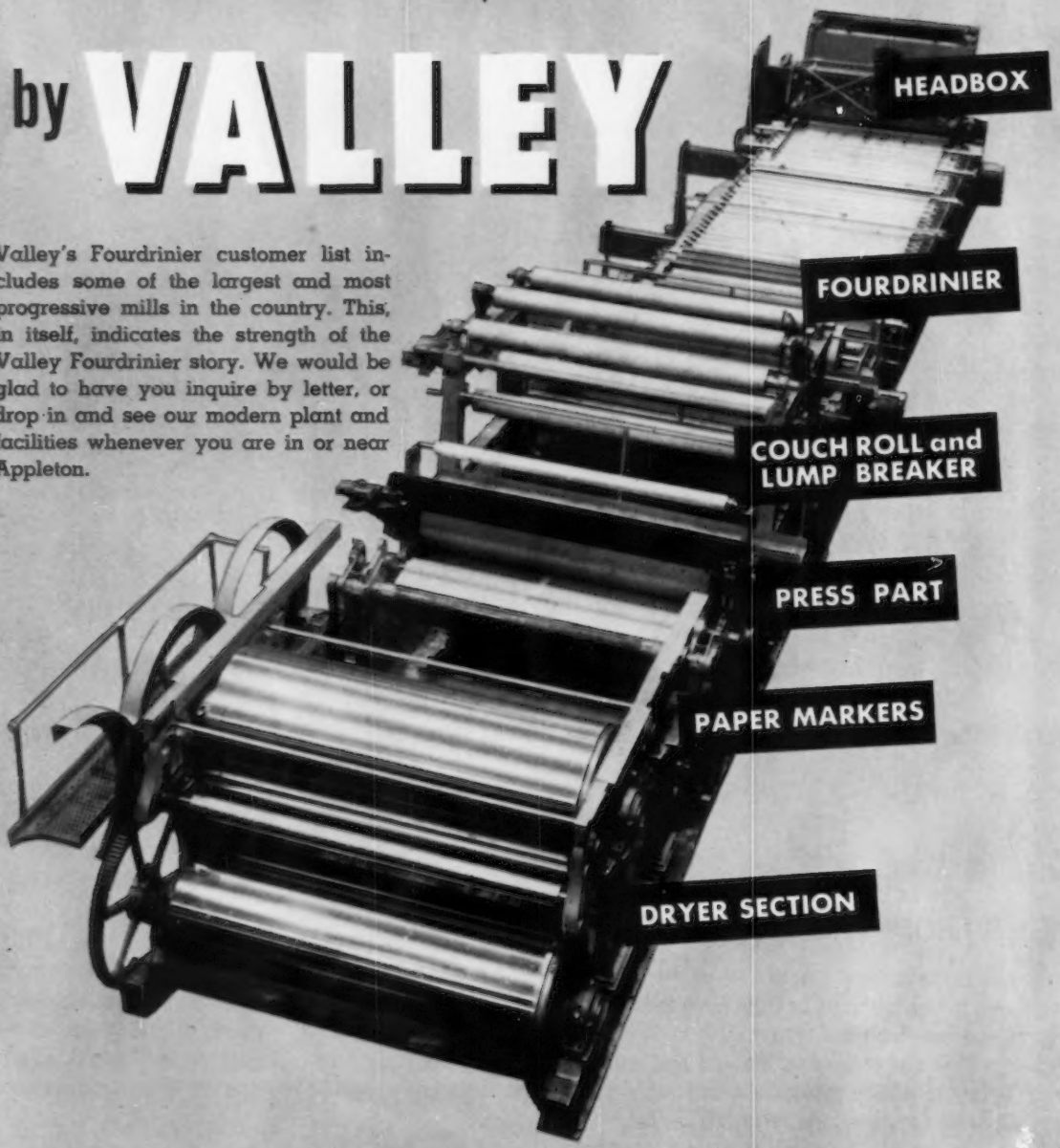
Current Grinnell piping responsibilities: Enrico Fermi Atomic Power Plant, Michigan; Ohio Power Company, West Virginia; National Aniline Division of Allied Chemical & Dye Corporation, Virginia; Memphis Light, Gas and Water Division, Tennessee; Aluminum Company of America, Indiana; South Carolina Electric & Gas Company, South Carolina; Duke Power Company, North Carolina; Union Bag-Camp Paper Corp., Virginia; Pennsylvania Power & Light Company, Pennsylvania; Holyoke Water Power Company, Massachusetts

GRINNELL

Cantilever Fourdrinier

by VALLEY

Valley's Fourdrinier customer list includes some of the largest and most progressive mills in the country. This, in itself, indicates the strength of the Valley Fourdrinier story. We would be glad to have you inquire by letter, or drop in and see our modern plant and facilities whenever you are in or near Appleton.



VALLEY IRON WORKS COMPANY
Appleton, Wisconsin

Canadian Representatives: Pulp and Paper Mill Accessories Ltd., P.O. Box 903, Station "O" Montreal 9, Quebec

Paper Trade Journal

PUBLISHED WEEKLY SINCE 1872

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REMEMBER THESE DATES

July 28-Aug. 1: TAPPI Engineering Conference Multnomah Hotel, Portland, Ore.

Sept. 10-12: Third International Mechanical Pulping Conference sponsored jointly by Technical Section, Canadian Pulp and Paper Assn. and Technical Assn. of Pulp and Paper Industry; Chateau Frontenac, Quebec City.

Sept. 24-26: 12th Alkaline Pulping Conference, Arlington Hotel, Hot Springs, Ark.

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To achieve these results, papermakers can choose from among such white pigments as TITANOX-A-WD, TITANOX-C-50, or TITANOX-RA-50. Whether used at the beater or in the coating, TITANOX white pigments insure easy mixing, complete dispersion and uniformity of all properties. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities.

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5729

Another **STANLEY STEEL STRAPPLICATION*** on the job

A special problem gets special attention from STANLEY

This Pennsylvania manufacturer had a problem . . . a backlog of paperboard always waiting to be steel strapped to skids for shipment. Faster strapping through the use of a steel strapping power tool seemed called for, but exceptional mobility in the packaging area was also a "must." The Stanley Steel Strapping Specialist provided the answer . . . a Stanley Electric Skid Magazine Tool mounted on an overhead track so it could be moved easily into position for strapping, yet be out of the way when not in use. Now, the ESM Tool electrically power-tightens the strapping to the desired, pre-set tension in seconds. Equal pull on each strap assures a compact skid-load. The great reinforcement strength of Stanley Steel Strapping guarantees that each 3,000 lb. skid-load will travel safely.

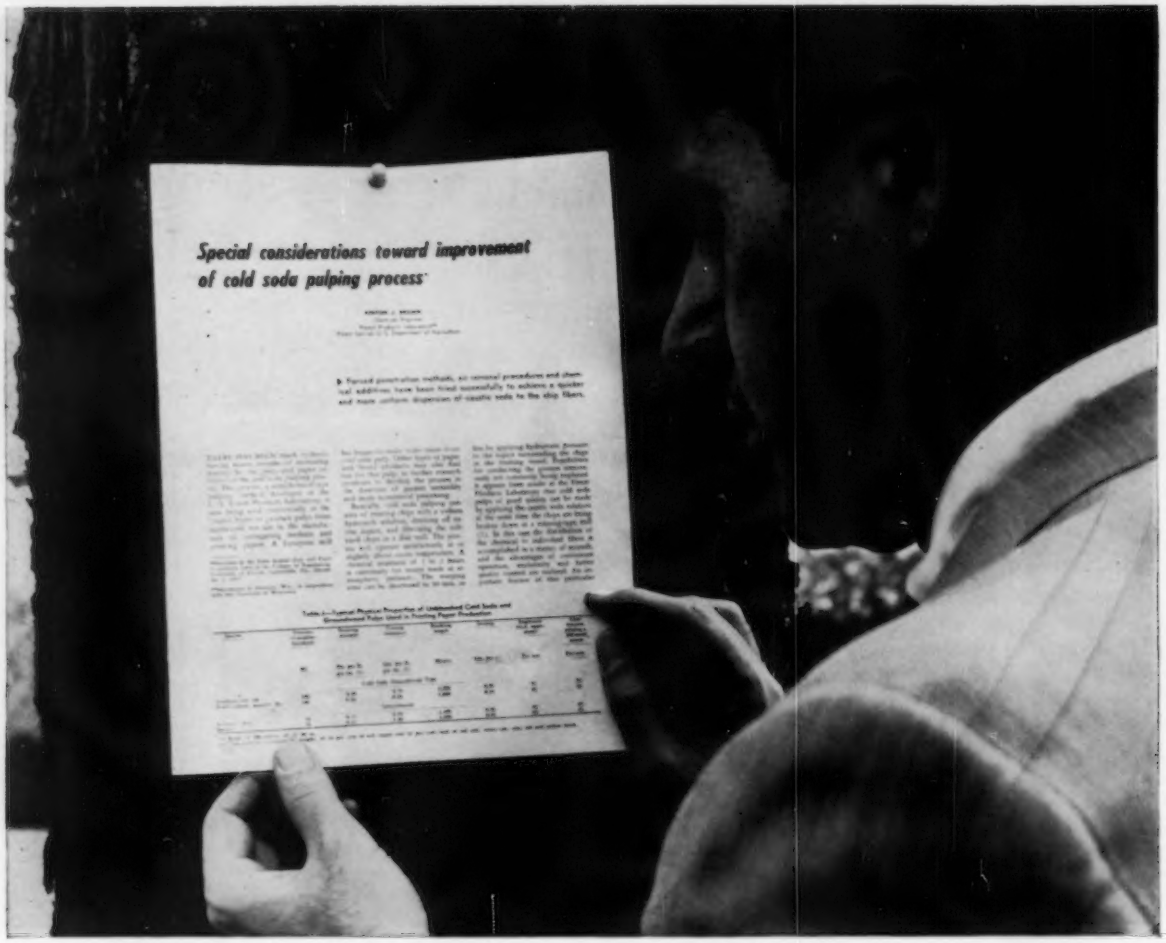
There's a "right" answer to *your* problem, too . . . and the Stanley Steel Strapping Specialist has it. Call him in. In the meantime, **WRITE FOR YOUR FREE COPY** of "The Stanley Strapplication Manual of Packaging and Shipping" to **STANLEY STEEL STRAPPING**, Division of The Stanley Works, Dept. G, 1307 Corbin Avenue, New Britain, Conn.

STANLEY INSURE IT-SECURE IT-WITH STANLEY STEEL STRAPPING

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • drapery, industrial and builders hardware • door controls • aluminum windows • stampings • springs • coatings • strip steel • steel strapping—made in 24 plants in the United States, Canada, England and Germany.



NOTICE

New data on cold caustic steeping of hardwoods

In October of 1956 a bulletin on a new process for treating aspen pulp with cold caustic soda began leaving the Hooker mail room.

This bulletin describes work done under Hooker sponsorship aimed at making it possible for the pulp industry to use cheap and readily available aspen for corrugating board and news-type papers.

Since that time many more developments not under Hooker sponsorship have been made, some of which are presented in a paper recently published in several journals. Believing this would be of value to many people in the industry we have secured a supply of reprints to offer to all interested persons. The title is: *Special Considerations Toward Improvement of Cold Soda Pulping Process**.

This new paper gives results from experimental and practical work with southern red oak, white oak, soft maple, elm, ash, and yellow birch pulps.

It puts particular emphasis on factors which can help you further improve the quality of paper and boards made from these hardwoods. A number of charts and tables summarize data on such liquor absorption factors as pressure, vacuum, particle size, moisture content, surfactants, and presteaming.

To get a copy, just write for Bulletin 252. If you missed the earlier work, ask also for Bulletin 250.

*This is a reprint of a paper prepared by Kenton J. Brown, a chemical engineer of the Forest Products Laboratory, Forest Service, U. S. Department of Agriculture.

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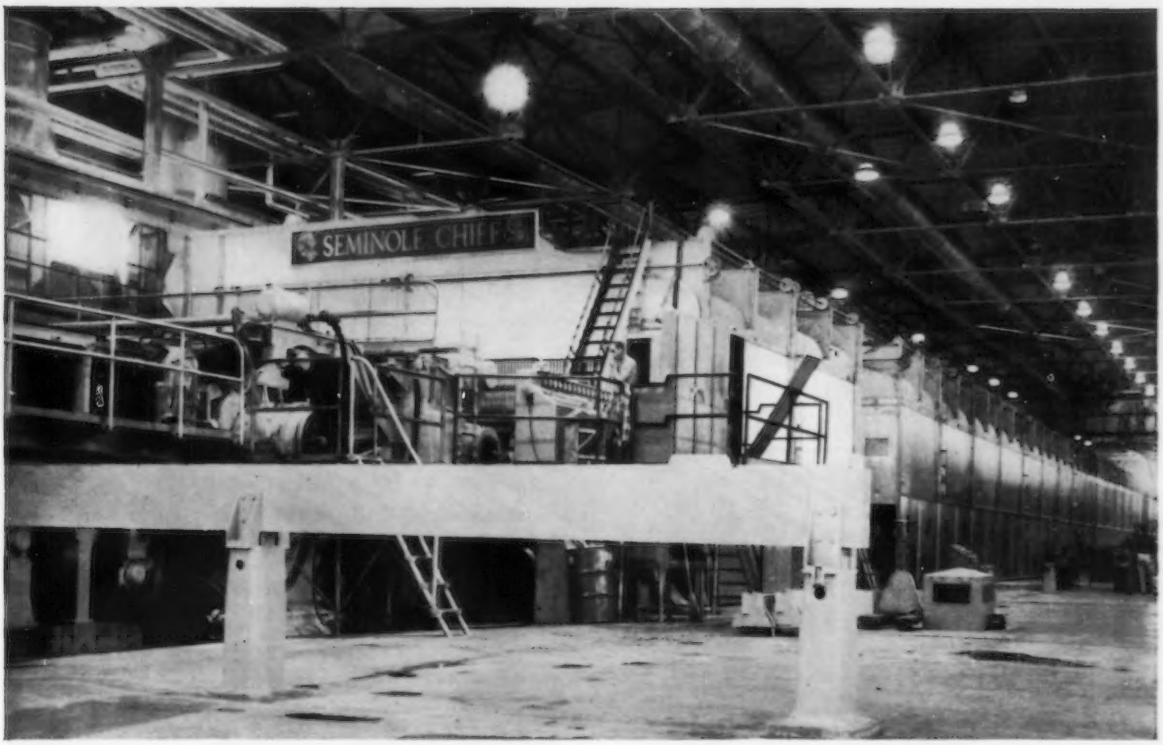
ROLL COVERINGS

On the Seminole Chief—

50,000 square feet of paperboard per minute speed across U. S. Rubber covered rolls



The Seminole Chief produces a staggering tonnage of 1000 tons per day. Veteran papermakers are amazed at its sheer size, its up-to-the-minute equipment. St. Regis Paper Co. required the best in everything, and that meant "U.S." for the roll coverings.

One reason why paper makers specify "U.S." is *experience*. St. Regis, for example, has many years of continuous production experience with "U.S." Roll Coverings on its #1 machine.

The big reason then is the quality of the roll covering itself . . . its dimensional stability, strength and durability, chemical and water resistance, firm adherence to metal, uniform surface.

Technical service is another "U.S." feature. Factory-trained engineers, working out of local "U.S." branch offices are ready to help solve your roll-covering problems.

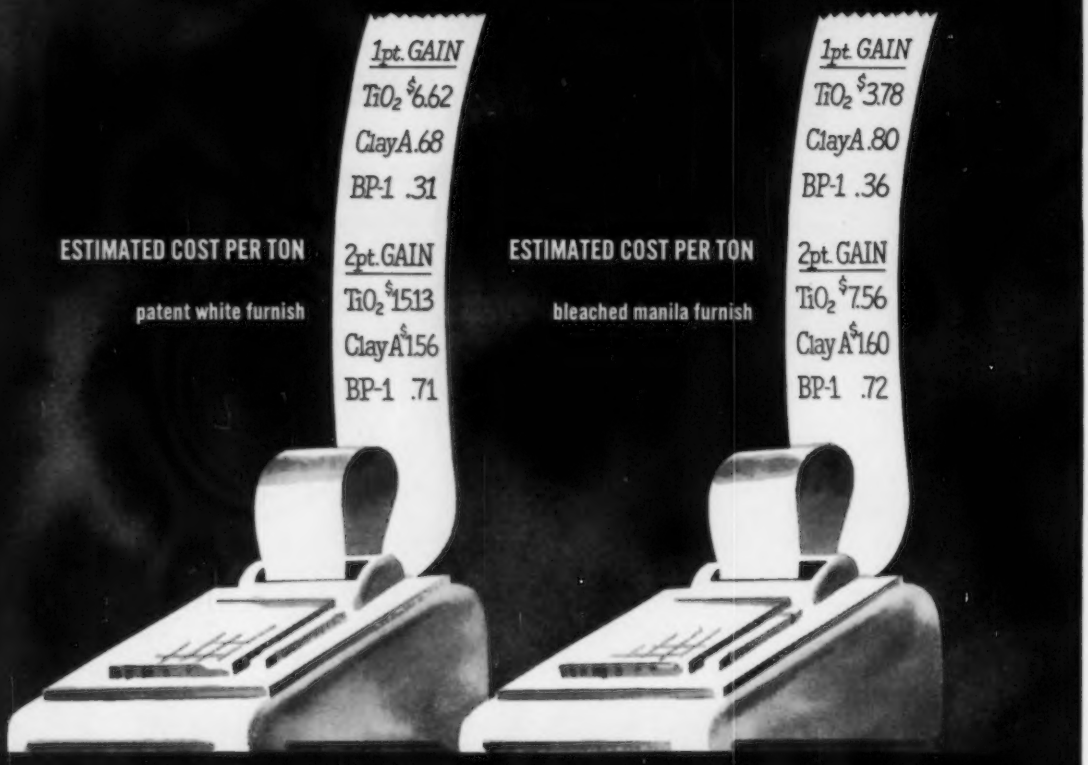
If you want rolls of this calibre—plus expert engineering assistance—contact roll-covering specialists either at your local "U.S." branch office, or write us at Rockefeller Center, New York 20, N.Y. In Canada, Dominion Rubber Co., Ltd.

Mechanical Goods Division

United States Rubber

See things you never saw before. Visit U.S. Rubber's new Exhibit Hall, Rockefeller Center, N.Y.

How much does added brightness cost—per point?



TEST-PROVED! ***High-brightness Dicalite costs you less than any other type of filler-pigment***

These figures, calculated from the results of tests recently made in a leading paper mill, show what some widely-used filler-pigments really cost. Because of the difference in retention of various materials these figures show the cost of filler-pigment which must be added to the furnish to obtain the brightness gain shown. In these tests, conducted in strict conformity with TAPPI T-205-M-53, *three times* as much Dicalite BP-1 (brightness 89.6 on the G.E. scale) was retained in the sheet as any other type of filler-pigment. BP-3 and BP-5 did almost as well. Once again, careful and impartial tests have given proof that high-brightness Dicalite Paperaids allow you to replace significant amounts of expensive TiO_2, and still get a better, brighter, smoother sheet at lower cost.

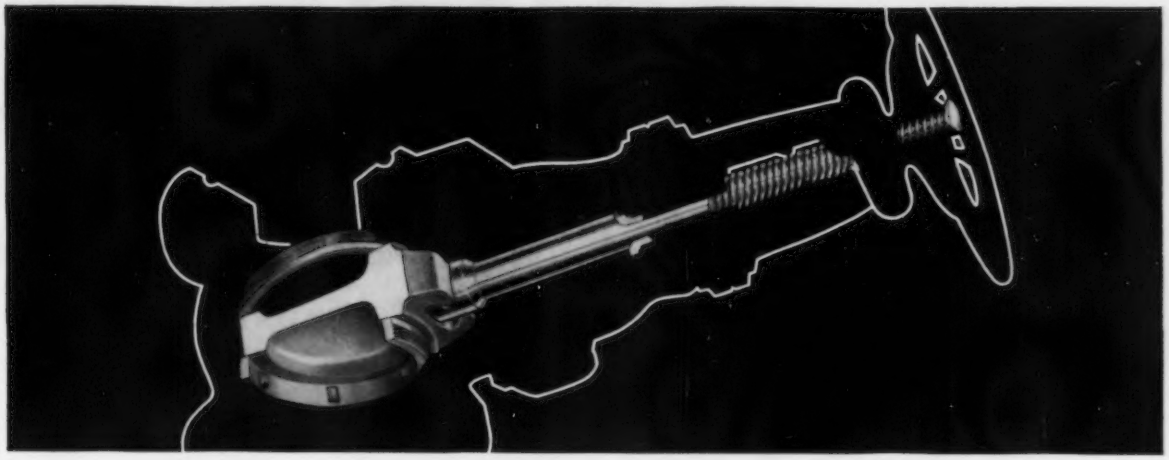
Write for information

Dependable GLC GREAT LAKES **Dicalite**® DIATOMACEOUS MATERIALS

DICALITE DEPARTMENT • GREAT LAKES CARBON CORPORATION, 612 SOUTH FLOWER STREET, LOS ANGELES 17, CALIFORNIA

in the Walworth No. 725FS

VITAL PARTS



DEFY CORROSION

Here you see the inside story on how Walworth helps combat corrosion problems for the pulp and paper industry. Every internal part of the No. 725FS Wedge Gate Valve, subject to the fluid, is made of materials which have high corrosion resistance to caustic fluids. The vulnerable wedge disc is made of Walworth W308 Ni-Resist Cast Iron for long life and foolproof service. The body seat rings are constructed of corrosion-defeating 18-8 stainless steel—and so are the stem and back seat bonnet bushing.

For complete information on this corrosion-resistant wedge gate valve, see your Walworth Distributor or write: *Walworth Company, 60 East 42nd Street, New York 17, New York.*

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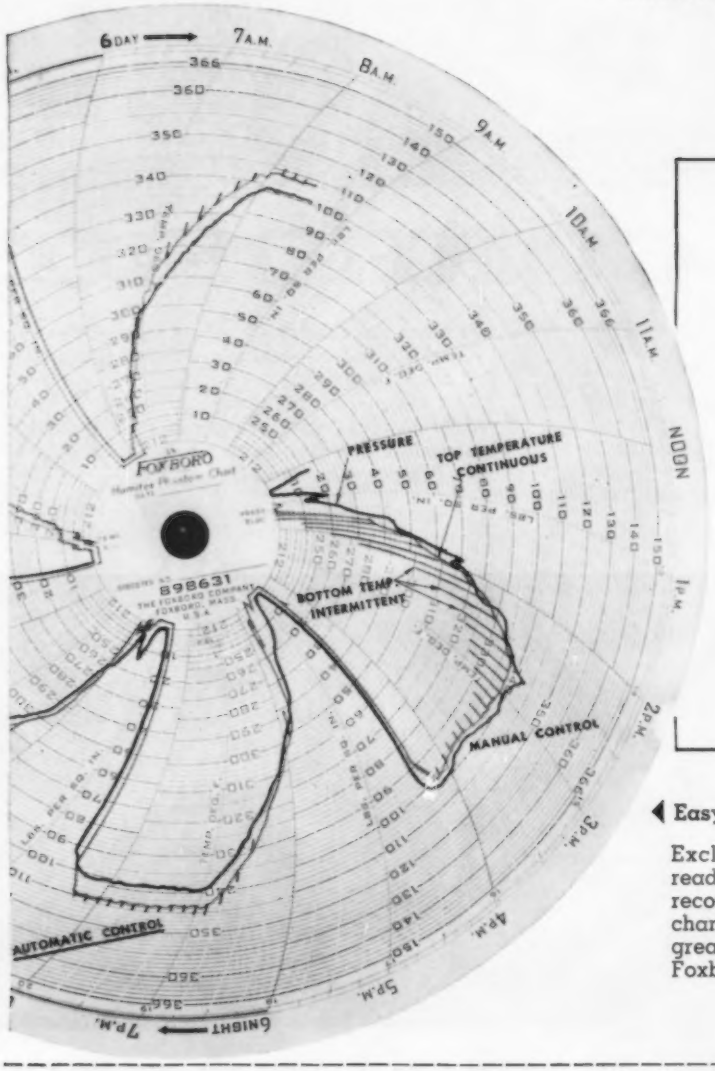
BIGGEST KRAFT ADVANCE

...New Foxboro system



Brings radically-improved results

- Uniform Permanganate
- Reduced Reject Variations
- Controlled Circulation
- No False Pressure
- Negligible Liquor Pull-over
- No Boiler Overload
- Significant Steam Savings
- Savings in Production Time

Easy-to-Read Record of Circulation

Exclusive, *top-and-bottom* temperature readings, as well as digester pressure, are recorded on this single Dynalog Recorder chart. Note how digester performance is greatly improved when operating under Foxboro Automatic Control.

FOXBORO

REG. U.S. PAT. OFF

COOKING IN 20 YEARS!

introduces controlled digester circulation

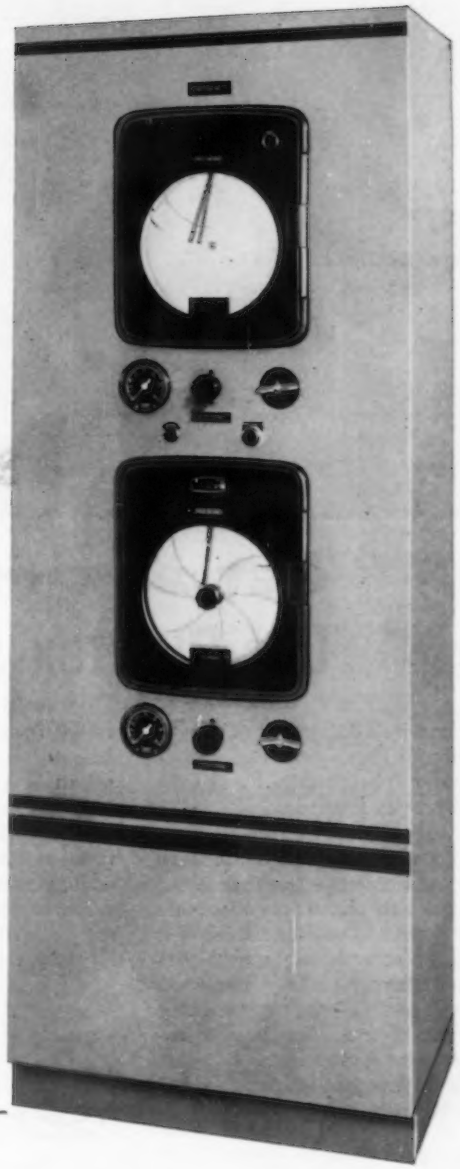
Featuring automatically inter-related controls for digester steaming and relief, this new Foxboro System for alkaline cooking brings important operating advantages never before possible!

Excellent circulation, with virtually no liquor pull-over, is achieved in part by automatically controlling the *flow* of relief (in reverse proportion to the steaming rate). This method of relief also maintains the required gas-off regardless of screen plugging. Blow-back, infrequently needed, is automatic.

Circulation is further improved and boiler overload is eliminated because steaming begins with flow control, with bumpless transfer to cam pressure control during the rise period.

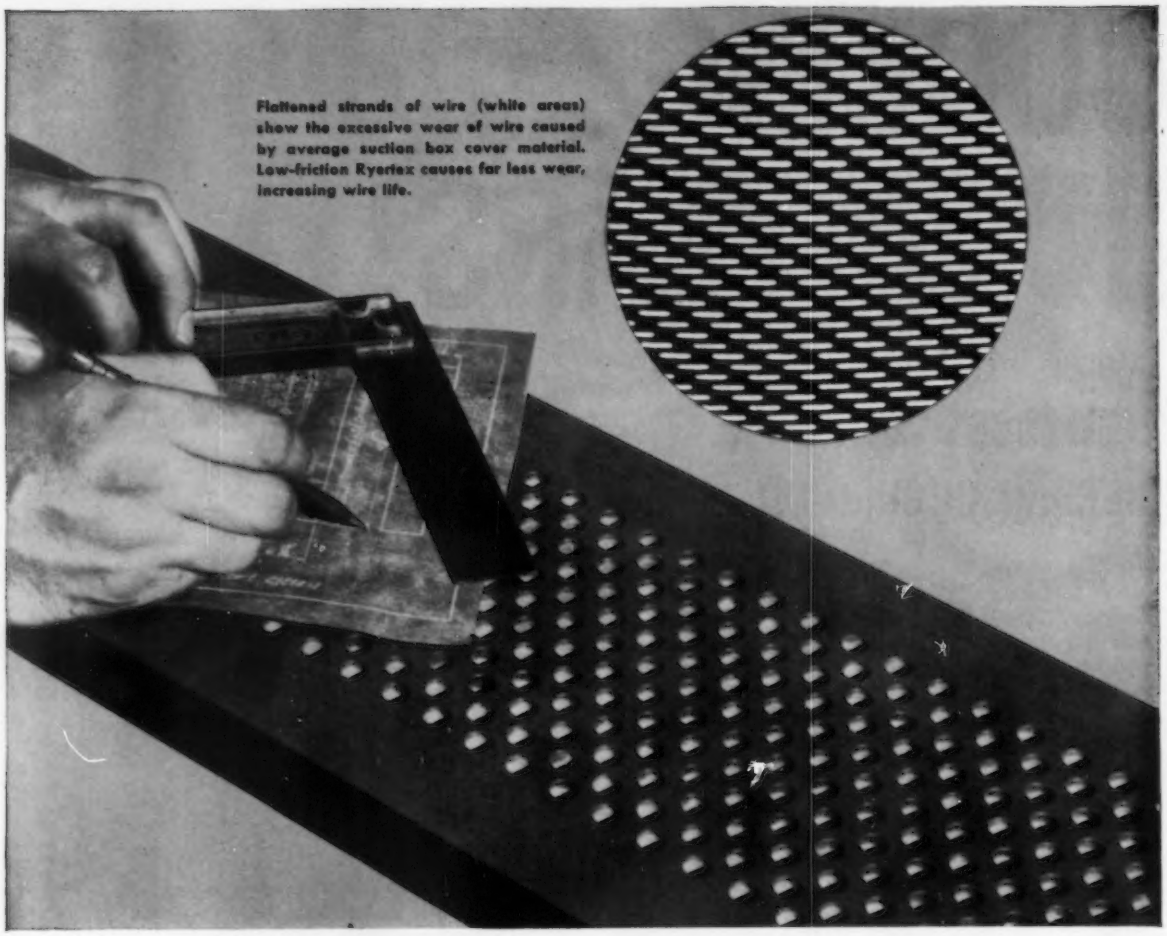
Operation is simpler than ever. To start a cooking cycle, the operator turns a single knob. The system completely and automatically controls the entire process until the end of cook.

For full details on this revolutionary new kraft digester control system, just call your nearby Foxboro Field Engineer, or write **The Foxboro Company, 237 Norfolk Street, Foxboro, Mass., U. S. A.**



Packaged Control System, pre-assembled and integrated in a compact control cabinet, ready to connect and start. Instruments, top to bottom, include: Dynalog Temperature and Pressure Recorder; Relief Flow-Indicating Controller; Cam Pressure Controller; Steam Flow Indicating Controller – plus auto/manual switches; manual controls for relief and steam valves; blow-back push-button and signal light.

AUTOMATIC DIGESTER CONTROL


Flattened strands of wire (white areas) show the excessive wear of wire caused by average suction box cover material. Low-friction Ryertex causes far less wear, increasing wire life.

GET 25% MORE WIRE LIFE

Use Ryertex® suction box covers

At your wire's only point of drag—the suction box—you can reduce wire wear substantially by the use of job-proven Ryertex.

No other cover material has a lower coefficient of friction with water lubrication—less than 0.01, or about half that of wood covers under normal operating conditions. Wires slip so smoothly over Ryertex that their service life is increased as much as 25%—four wires doing the work of five. This means important wire savings.

Your covers last longer, too, because Ryertex is a phenolic, laminated-textile composition that is smooth, tough, long-lasting. When a leading paper mill tested Ryertex against two competitive materials, the Ryertex covers lasted three times as long as material A, 35 times as long as material B.

Because even the largest covers are made of one continuous piece of Ryertex, they may have any perforation pattern of holes or slots, straight or tapered, in any combination that works best for you.

Next time you replace suction box covers, forming boards or pipe covers, investigate Ryertex. Call your nearby Ryerson plant.

You will also find many marked advantages in Ryertex paper mill bearings.

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Port Alberni Expansion Completed

MacMillan & Bloedel's $83 million pulp and paper expansion at Port Alberni, Vancouver Island, was completed this month with the production of the first reel of paper from the second newsprint machine.

The first newsprint machine came into production in August last year.

The construction crew, which hit a peak of 2200 men in 1957, has been gradually reduced to about 40 men who are doing final clean-up jobs.

The mill, which originally made unbleached kraft only, now has four machines turning out unbleached and semi-bleached pulps, kraft paper and board, as well as newsprint. New production capacity will be: market pulp 250 tons/day; kraft paper 200 tons/day; newsprint 700 tons/day.

The increased wood requirements of the mill will come largely from small or second-growth logs not suitable for manufacture into plywood or lumber and salvage of wood not otherwise usable from logging operations. Waste wood from nearby company sawmills is also utilized in the form of chips which are cooked to make kraft pulp. The increased production of the new machines will call for three times as much wood as previously used by the pulp mill.

Newsprint from the new No. 4 machine has been sold in advance to domestic and export markets, including the U.S., U.K., Australia, South America. However, sales are not expected to be quite sufficient to keep the machines running at top capacity for the balance of the year, owing to reduced demand for newsprint.

H. A. Simons Ltd. were the engineers responsible for the project. Dominion Construction Co. Ltd. were the general construction contractors. The two newsprint machines were manufactured by Beloit Iron Works.

New Water & Waste Dept. at Luke

A new Water and Waste Treatment Department has been organized at the Luke mill of the West Virginia Pulp and Paper Co., to handle the functions of water treatment, waste treatment and pollution abatement.

Establishment of the new department became necessary because of greatly increased activity at the mill in the fields of waste treatment and pollution abatement and the close relationship of water treatment to these activities.

David E. Long, who has been associated with the pollution abatement and water treatment departments for several years, will be the supervisor in charge of the new department. The company's Stony River dam also will be under his supervision.

James Barbarito and Earl P. Bisher have been named as sanitary engineers. Mr. Barbarito also will serve as operating engineer at the filter plant and paper mill clarifier. Mr. Bisher also will be engaged in special studies and will function as a project engineer on pollution abatement projects.

Paul Haywood will head the operations section of the new department. His duties include operation of the filtration plant, paper mill waste treatment, the new boiler feedwater plant and general supervision of contemplated laboratory services.

Mead Offers Stock Options to Employees

Mead Corp. granted three-year options on a maximum of 250,000 common shares to employees under a plan approved by the company's shareholders at the last annual meeting.

Price of the common shares under the options for the three-year period will be equal to 95 per cent of the mean between the high and low prices of the common shares on the New York Stock Exchange.

Under the plan, the 10,700 salaried and hourly employees have an opportunity to join the plan. Those joining will pay for the stock they wish to option by payroll deductions. The company will pay 3½ per cent interest compounded annually on the deposits. Employees will have the opportunity to exercise their options at intervals if they wish. At any time they may withdraw their deposits and collect their interest by surrendering their option rights.

Strathmore Plans Woronoco Power Plant

The Strathmore Paper Co. plans a new power plant for its two paper mills in Woronoco, Mass., involving about a million dollars.

Plans were announced by Paul A. Wilks, vice president and treasurer of the West Springfield concern.

Strathmore hopes to provide more power capacity and a modern power plant for its Woronoco mills. No new building is planned and no expansion is presently planned in paper production.

The money will be spent mostly on new power equipment which will be installed in the present power plant at Woronoco.

Doeskin Opening Is Predicted by Mayor

Rodrick O'Donahue, president of the Mt. Tom Pulp and Paper Co., and Thomas Prescott, treasurer, wood pulp consultants, were among the officials from the Mt. Tom Development Corp., who met at the Hotel Northampton with Mayor James Cahillane and other city officials recently to discuss the reopening of the Doeskin Products plant at the Easthampton-Holyoke-Northampton line.

A new waste treatment plant, costing in the vicinity of $150,000 will be built, complying with the New England Health Council. The Doeskin plant will not be serviced by Northampton's sewage treatment plant soon to be built. New office buildings will be provided and a building to house a new fourdrinier machine will be constructed. When the plant reopens it will be in operation for seven days a week and will put out 150 to 200 tons of paper a week.

O-I Adds Another Pulpwood Barge

A new 365-foot barge has been added to the Owens-Illinois fleet at Baltimore boosting the company's fleet to 13 vessels.

The barge will be used to transport pulpwood 300 miles from Grand Bahama Island to the Florida coast and the O-I pulp and paper mill at Jacksonville.

A similar barge was put into service two years ago. It carries 3,600 tons of pulpwood each trip.

SCHOLARSHIP COMMITTEE of the Pulp and Paper Foundation, Inc., who awarded scholarships to students at North Carolina State College. Seated: Dr. Lyle B. Rogers, student financial aid officer, N. C. State College; C. E. Libby, professor of Pulp and Paper Technology, State College; Elmer M. Leavitt, chairman, Foundation Scholarship Committee and resident manager, North Carolina Pulp Co., Plymouth, N. C.; H. Y. Charbonnier, manager, Pulp and Paper Division, Union Bag and Paper Corp., Savannah, Ga. Standing, left to right: A. L. Wiley, assistant pulp mill manager, Riegel Paper Corp., Acme, N. C.; C. E. Loughlin, chief chemist, International Paper Co., Georgetown, S. C.; R. E. L. Wheless, assistant paper mill superintendent, Union Bag-Camp Paper Corp., Franklin, Va.; Dean R. J. Preston, School of Forestry, N. C. State College; and R. G. Hitchings, assistant professor of Pulp and Paper Technology, State College.

55 Scholarships Awarded at N.C. School of Forestry

The Scholarship Committee of the Pulp and Paper Foundation, Inc., has awarded 55 scholarships totaling $91,550 to students in the School of Forestry at North Carolina State College. Thirty scholarships for students already enrolled at the college were renewed and 25 freshmen or students transferring from other institutions were awarded new scholarships.

The annual value of the renewed scholarships amounts to $18,550, and the annual value of the new scholarships totals $11,950. Total annual value of the 55 awards in $30,500 or a grand total covering the remaining years of study for the recipients of $91,550.

The scholarships range in value from $300 to $750 per year.

Heat-Resistant Ceramic Fiber Paper

Knowlton Brothers, manufacturers of specialized industrial papers, have progressed from the development stage to pilot machine production runs on a special heat-resistant paper made primarily from ceramic fibers (Fibre-frax). Because the ceramic material itself is capable of withstanding temperatures to 1500° Centrigrade, and the cellulose binder content has been held to only 10 per cent, this Grade No. 424 paper offers exceptional heat-resistance.

Grade No. 424 is an open, low-density paper. A feature of the paper is low air permeability: it has a densometer rating of 2.5 to 3.0 seconds for 400 c.c., using a Gurley densometer with ¼ inch orifice. Basis weight, 24 x 36 inches, is 78 to 80 pounds. Its high absorbent capacity makes it suitable for use as a saturating base paper. Crosswise tensile strength is 2 lbs. per inch of width; lengthwise tensile is 3 lbs. per inch of width.

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending July 12, 1958, was 62.3 per cent compared with 52.0 per cent revised for the preceding week. The ratio was 78.1 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending July 12, 1958, was 48 per cent compared with 61 per cent for the preceding week and 55 per cent for the corresponding week last year.

The relatively low ratios for the week ending July 12 are due to the vacation shutdowns usual for this time of year.

(Detailed statistics on page 22.)

Program for Paper-Plastic Meeting

The program has been announced for the 13th TAPPI Paper-Plastics Conference, to be held at Sheraton-Kimball Hotel, Springfield, Mass. on October 20-22.

Monday

First Session "Extrusion Coating of Linear Polyethylene on Paper". Session Chairman: H. A. Arbit, Bakelite Co., Bound Brook, N. J.

1. "Equipment for Extrusion Coating", J. Melead and J. E. Nordgren, Dilts Division, Black-Clawson Co., Inc., Fulton, N. Y.

2. "Forming Containers From Polyethylene Coated Board", J. R. Sonneborn, Food Machinery Corp., Philadelphia, Pa.

3. "Markets and End Use Applications for High Density Polyethylene/Paper Combination," A. J. Dragonette, Bakelite Co., New York, N. Y.

Second Session: "Performance of New Paper-Thermoplastic Resin Combinations" Session Chairman: H. Spector, Permoid Corp., West Springfield, Mass.

1. "Mechanics of Latex Saturation", R. C. Hoch, Endura Corp., Quakertown, Pa.

Committee Meetings: Plastics — W. N. Stickel, Chairman; Plastics-Laminates—P. M. Goodloe, Chairman

Official Banquet Speaker: Arthur Bronwell, President, Worcester Polytechnic Institute, Worcester, Mass. "Can We Maintain a Philosophy of Progress"

Tuesday

Third Session: "Performance of New Paper-Thermosetting Resin Combinations" Session Chairman: P. M. Goodloe, Brown Co., Berlin, N. H.

1. "Study of Curl in Decorative Laminates", W. E. Morris, Barrett Div., Allied Chemical & Dye, Edgewater, N. J.

Fourth Session: "Fundamental Aspects of Fiber-Plastics Combinations" Session Chairman: T. A. Howells, Institute of Paper Chemistry, Appleton, Wis.

1. "Engineering Design of Fiber Structures", by W. J. Hamburger, Fabrics Research Laboratories, Inc.

Committee Meetings: Plastics-Laminates—P. M. Goodloe, Chairman; Plastics—W. N. Stickel, Chairman

Wednesday

A.M. Visit to Monsanto Chemical Co., Springfield, Mass.

P.M. Visit to Strathmore Paper Co., Woronoco, Mass., Enroute visit to U. S. Rubber Co., Naugatuck, Conn.

Mechanical Pulping Conference Program

Program for the Third International Mechanical Pulping Conference, to be held at Chateau Frontenac, Quebec, follows:

Wednesday, September 10

Opening Session: E. H. Johnson, Stevens & Thompson Paper Co., Greenwich, N. Y., *Chairman*

1. Opening Remarks by J. K. Kirkpatrick, Bowaters Southern Paper Corp. Calhoun, Tenn., General Chairman

2. Keynote Address by Otto Brauns, Central Laboratories of the Swedish Paper, Mechanical Pulp, and Wallboard Industries, Stockholm, Sweden.

3. "A New Method of Grinding" by Piero Bersano, Cartiere Burgo, Torino, Italy.

4. "A Cause of Wide, Uncontrolled Freeness Variation in Groundwood Production—The Varying Angle between Stone Surface and Wood" by L. R. Beath, Price Bros. & Co., Ltd., Kenogami, Que.

2:00 P.M. "Fundamental Concepts of Groundwood Evaluation," M. J. Beasley, Canadian International Paper Co., Gatineau, Que., *Chairman*

5. "The Effect of Groundwood Pulp Quality on Paper Machine Operation" by G. Herwig, Finch, Pruyn & Co., Glens Falls, N. Y.

6. "Fundamentals of Groundwood Evaluation—A New Approach" by J. d'A. Clark, Consulting Engineering, Victoria, B. C.

7. Panel Discussion: "Fundamental Concepts of Groundwood Evaluation" W. Gallay, E. B. Eddy Co., Hull, Que., *Moderator.* Panel: J. d'A. Clark, Consulting Engineer, Victoria, B. C.; G. Herwig, Finch, Pruyn & Co., Glens Falls, N. Y.; B. Steenberg, Swedish Forest Products Research Laboratories, Stockholm, Sweden; A. A. Robertson, Pulp & Paper Research Institute of Canada Montreal, Que.; W. B. Campbell, Consultant, Montreal, Que.

Thursday, September 11

9:00 A.M. *Third Session:* R. T. Wetmore, Ontario Paper Co., Thorold, Ont., *Chairman*

8. "Control Testing in the Groundwood Mill" by F. W. Bishop, Southland Paper Mills, Lufkin, Tex.

9. Panel Discussion: "Optimum Grinding Techniques" R. T. Wetmore, *Moderator.* Panel: J. K. Kirkpatrick, Bowaters Southern Paper Corp., Calhoun, Tenn. "Is Micrometric Burring Worthwhile?" L. W. Dunphy, Anglo-Newfoundland Development Co., Grand Falls, Nfl. "Effect of Surface Speed on Pulp Quality" J. H. Perry, Norton Co., Worcester, Mass. "How Much Power should be Connected to the Stone?" A. M. Cuthbertson, Abitibi Power & Paper Co., Sault Ste. Marie, Ont. "What is the Ideal Grinding Pressure?" R. M. Murley, Bowaters Newfoundland Pulp & Paper Mills, Ltd., Corner Brook, Nfl. "Optimum Grinder Pit Conditions" F. W. Bishop, Southland Paper Mills, Lufkin, Tex. "Southern Wood Species and Wood Condition" C. L. Colbath, West Tacoma Newsprint Co., Steilacoom, Wash. "Western Wood Species and Wood Condition" J. C. Hunter, Powell River Co., Ltd., Powell River, B. C. "Common Sense in Pulpstone Specifications"

2:00 P.M. Fourth Session: M. Quinn, Quebec North Shore Paper Co., Baie Comeau, Que., *Chairman*

10. "Coarse Grinding followed by Refining" by F. S. Hoholik, Manistique Paper Co., Manistique, Mich.

11. "Automatic Wood Handling" by J. C. Hunter, Powell River Co., Ltd., Powell River, B. C.

12. Panel Discussion: "Tailoring Groundwood for End Use" E. P. Walsh, Anglo Canadian Pulp & Paper Mills, Quebec, Que. *Moderator.* Panel: S. R. Parsons, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis. C. A. Richardson, Blandin Paper Co., Grand Rapids, Mich. W. J. Walker, Champion Paper & Fibre Co., Pasadena, Tex. R. W. Leaf, Shawano Paper Mills, Shawano, Wis. J. A. McLean, Great Northern Paper Co., Millinocket, Me.

7:00 P.M. Official Banquet (Habitant Dinner) J. K. Kirkpatrick, Bowaters Southern Paper Corporation, Calhoun, Tenn., *Chairman.* Guest Speaker: To be announced

Friday, September 12

9:00 A.M. Fifth Session—Bleaching and Drying F. W. O'Neil, College of Forestry, Syracuse, N. Y., *Chairman*

13. "Two Stage Groundwood Bleaching" by H. Jacques, Finch, Pruyn & Co., Glens Falls, N. Y. and R. Barton, Virginia Smelting Co., Norfolk, Va.

14. "The Use of Sodium Borohydride for Bleaching Groundwood Pulp" by C. P. Donofrio, College of Forestry, Syracuse, N. Y.

15. "Flash Drying of Groundwood in Crumb Form at Sheet Harbour" by H. Sternberger, Hearst Publications, New York, N. Y.

16. "Flash Drying of Groundwood —The Glomera Pulp Drying System at John Breakey Ltd." by Louis Gagnon, John Breakey, Ltd., Breakeyville, Que. and Karl Stangl, D & S Engineering, Ltd., Vancouver, B. C.

2:00 P.M. Sixth Session—Groundwood Cleaning L. A. Miller, New Brunswick International Pulp & Paper Co., Dalhousie, N. B., *Chairman*

17. "High Consistency Screening" by A. E. Dentremont and R. Swanson, Great Northern Paper Co., Millinocket, Me.

18. Panel Discussion: "Modern Screening and Cleaning Methods" L. A. Miller, *Moderator.* Panel: M. S. Anderson, Oxford Paper Co., Rumford, Me.; D. S. Burak, Escanaba Paper Co., Escanaba, Mich.; N. E. Ward, MacMillan & Bloedel, Ltd., Port Alberni, B. C.; H. Loyd, Consolidated Paper Co., Ltd., Grand Mere, Que.; B. Steenberg, Swedish Forest Products Research Laboratories, Stockholm, Sweden; J. A. McLean, Great Northern Paper Co., Millinocket, Me.

Saturday, September 13—Mill Visits

MECHANICAL PULPING CONFERENCE PLANNING COMMITTEE . . . clockwise from lower left: J. H. White, Keyes Fibre Co.; J. H. Perry and W. H. Copeland, Norton Co.; A. A. Yankowski, Kimberly-Clark Corp.; R. A. Joss, C.P.P.A. Technical Section; E. H. Johnson, Stevens & Thompson Paper Co.; P. M. Quinn, Quebec North Shore Paper Co.; A. J. Winchester, TAPPI; W. Gallay, E. B. Eddy Co.; E. P. Walsh, Anglo-Newfoundland.

Western Pulp Products Plant Sold

The Western Pulp Products plant, Corvallis, Ore., has been purchased by William Dorsey, formerly general manager for DuBois Lumber Co., Vancouver, and Charles Wilson, Corvallis Ford dealer.

The Corvallis factory that makes specialty containers out of old newspapers and waxed paper waste, was sold by Ralph Chapman, inventor, and a partner for about $230,000. Mr. Chapman's associate in the enterprise was Fred Krehbiel.

The plant's output is floral containers and planters for nursery trade.

A second line uses roll ends purchased from a waxed paper factory in Washington to make disposable vases for florists.

Western Pulp occupies two single story structures on land leased from the city of Corvallis.

Todd Co. Occupies Two New Plants

Burroughs Corp.'s Todd Co. Division is moving into new branch printing plants near Philadelphia and Cincinnati which have a total production capacity 75 per cent greater than facilities now in use in those areas.

Moving of presses and other equipment has been started at both locations and is scheduled for completion by August 4.

The two modern one-story plants, whose total cost is about one million dollars, replace outmoded manufacturing facilities in the industrial areas of the two cities. Todd Co. Division, with main plant and headquarters are in Rochester, N. Y., has eight other branch plants in the United States and one in Canada.

Pexco Bag Moves Headquarters

Pexco Bag Manufacturing Co., producer of plastic and cellophane bags, announces the transfer of manufacturing operations from 32 Huron St. to new quarters at 201 Morris St., corner of Broadway, Toledo, Ohio.

Sales Supervisors Named by Bestwall Certain-Teed

Three sales personnel changes have been announced by Bestwall Certain-teed Sales Corp.

C. J. Lundblad has been appointed Philadelphia district sales supervisor, with headquarters in the district sales office at Wilmington, Del. With the company for more than 25 years, he has been most recently merchandise manager of Certain-teed's Insulation Division.

R. W. Miltz has been named sales supervisor of the Cleveland district. Mr. Miltz formerly was a salesman in the Cleveland territory for more than five years. More recently he served as Cleveland district roofing supervisor.

S. H. Bundy has been appointed sales supervisor of the Dallas district. He has been with the company since 1945 as salesman in the Wichita, Kansas, territory of the Kansas City district.

Kimple Promoted at Dixie Wax Paper

Louis T. Kimple has been promoted from senior vice president in charge of marketing to executive vice president of the Dixie Wax Paper Co., with headquarters in Dallas.

The recent action of the board of directors elevated Mr. Kimple to chief executive of the company. He is also president of Dixie of California.

Thompson Advanced at Milprint

Walter Thompson, formery works manager of the eastern division of Milprint, Inc., has been advanced to assistant to C. K. Billeb, vice president and chief of manufacturing operations of Milprint's ten plants.

From his headquarters in Downingtown, Pa., Mr. Thompson will direct engineering activities in the eastern division, which includes plants at Philadelphia, Christiana and Downingtown, Pa. In his new position he will function with central control out of Milwaukee and will participate in the broad planning of activities for the future growth of all Milprint plants.

Ahdawagam Installs High Speed Roto Laminator

A new Inta-Roto laminator with maximum speeds in excess of 500 feet per minute has been installed at Ahdawagam Division of Consolidated Water Power & Paper Co. The $100,000 installation is equipped with a Clark-Aiken sheeter and will laminate and sheet a 52-inch wide web using both adhesive and hot melt laminates.

General Manager Groff Collett states that the addition of the new machine gives the company unique advantages in satisfying the folding carton requirements of both the large and small users.

Features of the new machine include water-cooled air brakes, a hydraulically-operated metering and combining section, and Askania side register controls.

In addition to the high speed of the machine, other major economies are effected by reduced adhesive requirements, reduced board trim, and a substantially curl-free product.

Jensen Named Milprint Sales Administrator

Carl Jensen, formerly general manager of the Downingtown, Pa. plant of Milprint, Inc., has been advanced to sales administrator of the Eastern Division, a newly-created post.

Mr. Jensen will coordinate the activities of the salesmen in the field with the manufacturing operation at the three plants in the eastern division. His headquarters will continue to be at Downingtown, Pa.

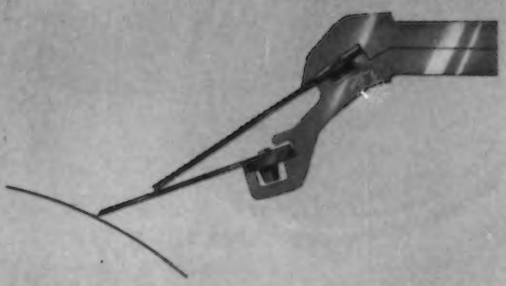
Morris Mills Liebman Retires

Federal Paper Board Co., Inc., has announced that Walter S. Liebman, vice president of its Morris Paper Mills Division, has retired.

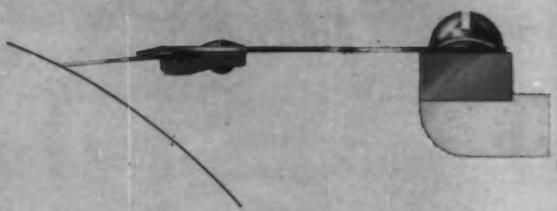
Mr. Liebman began his association with Morris Paper Mills in 1926 in Chicago. His previous employment was in Dallas, Texas, with the folding and set-up box plant of the Texas Paper Co. which was established by his father in 1883.

Wolverine Promotes James Spees

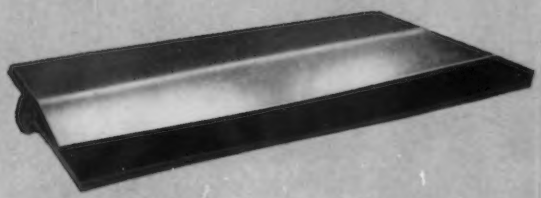
James R. Spees has been appointed assistant production manager for Wolverine Carton Co., Grand Rapids, Mich. He has been an employee of the firm since 1948 and for the last two years has been assistant purchasing agent and director of package engineering, posts he will continue in his new duties.



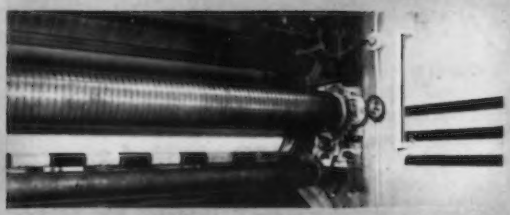
VICKERY HI-ANGLE DOCTORS



VICKERY HI-FLEX DOCTORS



VICKERY RS TYPE DOCTORS



VICKERY MOTOR OR HYDRAULICALLY OSCILLATED DOCTORS

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There are twelve different designs of Vickery Doctors engineered to do the best job on a particular roll under a given set of operating conditions.

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Vickery Doctor recommendations for a specific job are backed by experience covering hundreds of successful applications.

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Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

Russell F. Erickson

Henry M. Dennis

Rayonier Elects New President

Russell F. Erickson has been elected president and chief executive officer of Rayonier Inc., replacing Clyde B. Morgan who was elected chairman of the board.

William A. Parker, who is chairman of the board of Incorporated Investors, Boston, Mass. resigned as Rayonier chairman, a post he held since 1946. However, he will remain as a director and continue to serve as chairman of the executive committee.

At the same time it was announced three new directors had been elected. They are: Armand G. Erpf of New York, partner, Carl M. Loeb, Rhoades & Co.; Walter C. Koerner of Vancouver, B. C., president of Alaska Pine & Cellulose Limited and a director of Toronto-Dominion Bank of Canada; and Donald S. Leslie of Erie, Pennsylvania, president of Hammermill Paper Co.

Mr. Erickson, who joined Rayonier in 1946 as chief engineer of its chemical cellulose plant at Fernandina Beach, Fla., later becoming that division's resident manager, has been a vice president since 1950. November last year, he was elected an executive vice president. In 1956 he became a director of the company.

Lueck Goes to PR Office

James L. Lueck has joined the public relations department of consolidated Water Power & Paper Co. He has been employed at Appleton Division office since early 1957.

Dennis Resigns As Scott VP

Henry M. Dennis, assistant vice president of Scott Paper Co. and manager of the Timber Division of the company's West Coast Division, retired from his present position. He will become a consultant for Scott and will concern himself with the operation of the Mountain Tree Farm and the Canadian affiliates, Elk River Timber Co., Owikeno Lake Timber Co., and Northern Development, Ltd.

T. Robert Sheldon, assistant to Mr. Dennis, has assumed full responsibility as manager of the West Coast Timber Division.

Miami U. Names Paper Course Director

Miami University, Oxford, Ohio, has named as director for its new course in pulp and paper techniques and chemistry. C. Edwin Brandon, now technical director of Howard Paper Mills, Inc., which is one of approximately 20 firms cooperating with Miami in planning and development of the first such course to be offered by any Ohio college.

For the next year he will be concerned primarily with setting up and equipping the laboratories for the course in a building formerly used by the university's maintenance department. The specialized classroom-laboratory phases of the course will not begin until the 1959-60 school year, junior year of the initial group which began the course as freshmen last September.

Mr. Brandon has been with Howard 21 years, spending nine as chief chemist and six as assistant technical director before his promotion to technical director. He also is a former state chairman of Ohio TAPPI (Technical Association of Pulp & Paper Industry), which first proposed the course to Miami and the industry.

Oxford Names MacAdam to Purchasing Dept.

Oxford Paper Co. has appointed William C. MacAdam as assistant manager, purchasing department. He is to be located at their executive offices at 230 Park Ave., New York, with J. Everett Shea, manager, purchasing department.

Mr. MacAdam was formerly associated with Champion-International Co. at Lawrence, Mass., recently acquired by Oxford, as manager of woodlands department, assistant treasurer, and purchasing agent.

At the same time it was announced that certain purchasing department functions are being shifted to Rumford, Maine, and Dwight A. Rumery is being appointed purchasing agent—Rumford.

Columbia & Celgar Appoints Penney

A. E. Penney has been appointed vice president, pulp manufacturing, by Columbia Cellulose Co., Limited and Celgar Ltd.

Mr. Penney was with the bleached kraft pulp mill of the Brown Corp. in La Tuque, Quebec, where he became general superintendent. Later he became manager of pulp and paper manufacturing in the sulphate and sulphite pulp and paper operations of that company at Berlin, N. H., where he remained until he joined Columbia and Celgar in June of 1956 as manager of pulp manufacturing.

James Promoted at Columbia Cellulose

Columbia Cellulose Co., Ltd. has appointed Ralph H. W. James to the position of technical superintendent. He succeeds T. M. Hughes, who has joined the West Virginia Pulp and Paper Co. in Maryland.

Mr. James was born in Plymouth, England. He was employed by Courtauld's Ltd. in England on research problems related to the manufacture and spinning of Viscose yarn.

In 1951, Mr. James came to Canada and joined the staff of the Pulp and Paper Research Institute of Canada as a Research Associate. He joined Columbia Cellulose in 1954.

MINIMUM MAINTENANCE, LONG LIFE ASSURED BY THESE HEAVY-DUTY "BUFFALO" FANS

"Buffalo" Type "BLH" Fan
For Classes III & IV Service

"Buffalo" Type "BL" Fan
For Classes I & II Service

The high performance characteristics of these two outstanding "Buffalo" Fans has resulted in their widespread use in the field of industrial air handling. In addition to offering peak-efficiency operation in their respective classes, both the "BL" and the "BLH" bring you a bonus economy factor of *maintenance reduced to an absolute minimum* throughout a long, productive life. This minimum maintenance factor is directly due to unusually rugged "Buffalo" construction features such as:

HOUSINGS — The heavy gauge sides and scroll are of all-welded construction. Heavy structural steel bracing provides housing stiffness and rigid bearing support. Flanged inlets and outlets give added support.

SHAFTS — Hot-rolled or forged shafts are ground to close tolerances for perfect wheel and bearing fit.

WHEELS — Sturdy backward-curved blades are welded to the die-formed shroud and welded or riveted to the solid backplate. Heavy hubs assure permanent shaft alignment. For higher tip speeds, reinforcing rings provide necessary wheel rigidity.

BEARINGS — Self-aligning anti-friction bearings are designed for continuous operation at maximum tip speed. Horizontally split, ring-oiled, self-aligning, babbitted sleeve bearings are also available.

For full details, contact your "Buffalo" representative, or write for Bulletins F-102 and F-200.

Minimum maintenance is assured by the famous "Q" Factor — the built-in QUALITY that provides trouble-free satisfaction and long life in every "Buffalo" product.

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VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING FORCED DRAFT COOLING HEATING PRESSURE BLOWING

N-E Engineering and Power Departments Combined

In recent organizational changes announced by Nekoosa-Edwards Paper Co., the engineering and power departments have been merged into one unit called the engineering and power department. This new department will be headed by Frank H. Coldwell who formerly was manager of power. Robert E. Simkins will continue his present duties as manager of engineering as part of the new department.

Mr. Coldwell has been a member of the Nekoosa-Edwards organization since 1925 and has held positions as power plant foreman, assistant manager of power, manager of mill power, and manager of the combined mill and outside power departments before assuming his new position.

Mr. Simkins joined the company as a project engineer in 1954 following 17 years experience in the United States and Canada in paper and pulp mill engineering. He was named manager of engineering in 1956.

William Laidig has been named steam superintendent in the newly organized department. He joined the power department in 1950 and has served as a steam engineer until being named to his new position.

Staff Changes at Luke Mill

Donald W. Butts has joined the commercial analysis group at the Luke, Md., mill of West Virginia Pulp and Paper Co. He was employed for the past two years in the investment research department of the Mellon National Bank and Trust Company, Pittsburgh.

D. Robert Ayers joined the instrumentation group of the Technical Service Department at the mill. He worked in the research laboratory at the mill last summer.

International's New Appointments

The International Paper Co. has announced several appointments in the fine paper and bleached board division. Lawrence B. Kelley was named manager, merchant sales; William G. Luke Jr. assistant manager, merchant sales; Russell E. Chase Jr. assistant manager, publication sales, and Louis Chable Jr. regional manager, New York sales.

Named Development Analyst

James H. Thompson has been named development analyst at Diamond Gardner Corp. He was a staff assistant, general management, having joined the company in 1950 as an accounting trainee.

Promotions Listed at Ohio Boxboard

William H. Hahn has been promoted to general manager of Pittsburgh operations by the Ohio Boxboard Co. Formerly, he was Pittsburgh plant manager.

Mr. Hahn replaces J. I. Miller, who is now the company's manager of national account sales.

Paul L. Boyle has been named as sales manager and H. M. Wentley is now assistant sales manager in charge of special accounts in the Pittsburgh district.

New Executives at Puget Sound

When Pacific Coast Paper Mills officially became a division of Puget Sound Pulp and Timber Co., the parent company gained three new executives.

F. J. Herb, former president of Pacific, became a vice president and board member of Puget. His father, J. J. Herb, also joined the Puget board of directors. Victor A. Hughes, former secretary-treasurer of Pacific, became assistant secretary of Puget.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	June 14	June 21	June 28	July 5	July 12
1958	87.4	88.5	86.8	52.0r	62.3
	June 15	June 22	June 29	July 6	July 13
1957	94.8	92.1	92.2	51.6	78.1

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	86.9	89.5	89.5‡	87.4‡	86.4‡	86.2‡	—	—	—	—	—	—	—
1957	94.2	97.0	97.1	94.0	94.6	93.3	75.6	90.7	86.0	93.0	90.7	81.5	90.9

‡Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1951	1952	1953	1954	1955	1956	1957	1958
Year to Date	99.9	90.9	92.6	91.4	94.6	99.3	92.3	86.5
Year Average	98.0	88.6	92.3	91.6	94.0	97.9	90.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	June 14	June 21	June 28	July 5	July 12
1958	90	88	89	61	48
	June 15	June 22	June 29	July 6	July 13
1957	94	93	92	54	55

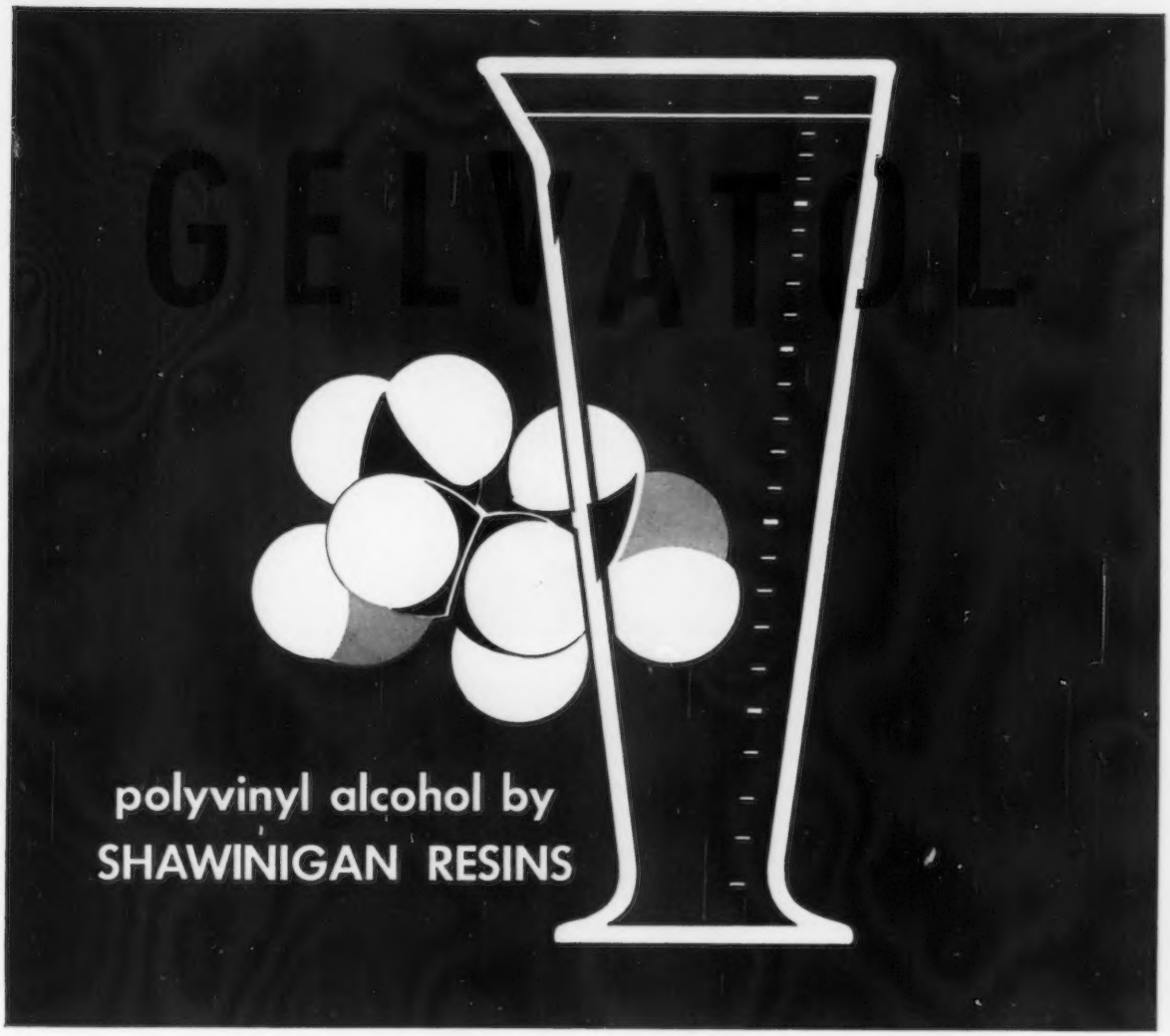
COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	80	86	88	84	84	86	—	—	—	—	—	—	—
1957	91	94	94	92	93	91	72	94	91	97	92	79	90

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING July 12, 1958	LAST WEEK ENDING July 5, 1958	CUMULATIVE TO DATE Jan. 1 to July 12, 1958
% Activtiy	48%	61%	83%
	Tons	*Tons*	*Tons*
Total Production	133,774	193,815	7,009,495
Liner	44,542	64,465	2,289,260
Corrugating Material	23,805	34,662	1,045,152
Chip & Filler Board	2,473	3,596	129,290
Total Containerboard	70,820	102,723	3,463,702
Folding	26,287	29,629	1,375,533
Set-Up	4,635	5,434	277,817
Special Food Board	14,445	23,257	678,521
Other	17,587	32,772	1,213,922
Total Boxboard	62,954	91,092	3,545,793
Total Orders	*Tons*	*Tons*	
Received	191,439	229,248	
Unfilled End of Week	447,215	391,454	



is clearly superior

Shawinigan's modern process controls keep GELVATOL clear in solution . . . the yellowish cast associated with most polyvinyl alcohol solutions is virtually eliminated. Furthermore, the resin's molecular composition is held within tight limits, thus reducing the slight haze normally found in solutions. These are meaningful advantages to polyvinyl alcohol users.

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SHAWINIGAN RESINS

Supervisory Personnel Named at Marathon's Naheola Mill

Marathon Southern Corp. has announced its key supervisory personnel who will be responsible for operating the new multi-million dollar paper mill in Choctaw County, Alabama. This plant, expected to start production of pulp, paper, and paper board, in August, is one of the largest and most modern to be constructed in the South.

The site of Alabama's newest industry commands more than 1100 acres on the banks of the Tombigbee River near Naheola. There will be a total of 600 people employed when the plant is in full operation.

John E. Spalding
Mill Manager

Comes from Menasha, Wis. where he was paper making superintendent for the entire Marathon Division.

Mr. Spalding is a graduate of Massachusetts Institute of Technology and a native of Salisbury, Mass. He joined Marathon, now a division of American Can Co., in 1947, coming from the American Viscose Corp. One of his initial duties involved leading the research efforts that developed one of the company's major products—Waxtex.

He also headed process engineering in Menasha, and earlier spent a tour of duty as paper mill superintendent at Oswego, N. Y.

George Brabender
Assistant Mill Manager

Comes from Menasha, Wis., where he was staff assistant to the executive vice president of Marathon. He was a member of the committee that selected Naheola as the site in western Alabama for Marathon Southern. Mr. Brabender is a native of Peshtigo, Wis., and holds a Masters Degree in chemical engineering from the University of Wisconsin. He joined Marathon as a research chemical engineer in 1930, became central research manager, later supervising special projects for the company.

Hansell R. Wade
Pulp Mill Superintendent

Comes from Brunswick, Ga., where he was superintendent for the Brunswick Pulp and Paper Co. His pulp mill background also includes tours at the Crossett Paper Mills, Crossett, Ark.; and International Paper Co., Panama City, Fla. He is a graduate of the Gardner Military College in Barnesville, Ga.

James R. Kocha
Plant Engineer

Comes from Menominee, Mich., where he was plant engineer for Marathon. He joined the company in 1947 after working for Pratt and Whitney Aircraft Corp. in Hartford, Conn. Mr. Kocha is a native of Green Bay and a graduate of the University of Wisconsin.

Robert S. Williams
Paper Mill Superintendent

Comes from Menasha, Wis., where he held the same job at Marathon's Canal St. plant. Mr. Williams received a Bachelor of Science Degree in chemical engineering at Texas A&M College and later graduated from the Institute of Paper Chemistry in Appleton Wis.

George Smits
Converting Superintendent

Comes from Green Bay, Wis., where he held the same job with the Northern division of Marathon. He joined Northern in 1940 and came up through the ranks to his present position. It will be his responsibility to convert tissue into bathroom and kitchen products.

John E. Jungkind
Public Relations Representative

Comes from Washington, D. C. where he was public relations representative for the National Cotton Council. Before that he was in the Council's home office in Memphis, Tenn., and was in charge of publications, radio-television and agricultural liaison. A native of Beebe, Ark., he holds a Masters Degree from the University of Missouri School of Journalism. He is a former reporter-photographer for the Arkansas Gazette in Little Rock, and the Lafayette (La.) Daily Advertiser. He was director of public relations for the Memphis Community Chest from 1950 to 1953.

William E. Lloyd
Industrial Relations Administrator

Came South to head up industrial relations from Marathon's plant at Oswego, N. Y., where he held the same position. He joined Marathon in 1949 after graduation from Northwestern University.

Rudolph C. Richter
Technical Services Supervisor

Comes from the University of Alabama where he was head of the pulp and paper department of the School of Chemistry. He has worked for the National Container Corp. in Florida and at Union Bag Co. in Savannah, Ga. He also was pulp mill superintendent at St. Mary's Kraft in Georgia. Mr. Richter is a graduate of the University of Georgia, holding a Masters Degree in chemistry.

Donald Hesselman
Production Services Supervisor

Comes from Neenah, Wis., where he held the same job at a Marathon converting plant. He has spent a total of twelve years in some phase of production services for the company.

Joseph P. (Pat) Smith
Office Manager

Comes from Central Industrial Accounting Division of Marathon in Menasha, Wis. He formerly was with St. Regis Paper in Oswego, N. Y. and remained when Marathon purchased that plant, later transferring to Wisconsin. He attended Mississippi State College in Starkville and graduated in accounting at Niagara (N. Y.) University.

David L. Hughes
Purchasing Agent

Comes from central purchasing staff in Menasha, Wis. A graduate of Princeton, he was a member of the purchasing department of Northern Paper Mills in Green Bay, Wis., before that company combined interests with Marathon.

James Anderson
Chief Accountant

Comes from Menasha where he was in charge of invoicing, statistics, and tabulating. Before that he was senior internal auditor and credit correspondent. Mr. Anderson is a Certified Public Accountant and received his degree in accounting from the University of Wisconsin. He is a native of Streator, Ill. Before joining Marathon in 1950 he worked for Price, Waterhouse & Co., Milwaukee and, before that, for A. T. Bacon & Co., in Chicago.

Supervisory Personnel at Naheola (Continued)

J. Vince Martin
Woodlands Manager

Comes to Marathon Southern from Wausau, Wis., where he worked in the company's Lake States woodlands operation. His background in the industry includes engineering, maintenance, sales, research and pulp and paper making, in addition to forestry. He holds a degree from Syracuse University and is a native of Poughkeepsie, N. Y. Mr. Martin was a member of the company's site selection committee.

John W. Griffith
Area Supervisor—Woodlands

Comes from the Gypsum Co. in Altavista, Va. He is a native of La Grange, Ill. and graduated in forestry from Pennsylvania State College. His experience includes woodlands acquisition and management, map preparation, cruising, protection, title examination, in Maine, Mississippi, Alabama, and Virginia.

Emmett Conn
Field Superintendent—Woodlands

First man employed by Marathon Southern Corp. Mr. Conn is a former general field superintendent for the Swift-Hunter Lumber Co. in Atmore, Ala. He has a wide background in management of Southern forest lands.

Eugene Keller
Area Supervisor—Woodlands

Comes from the Ozark Badger Lumber Co. in Arkansas, and before that was assistant professor of forestry at Arkansas A & M College at Monticello, Ark. Mr. Keller holds degrees in forestry from the University of Michigan and from Iowa State College. He also spent a year in forest research at the Iowa Agricultural Experiment Station in Ames.

James Clyde Grace
Area Supervisor—Woodlands

Mr. Grace is a graduate of the University of Florida Forest Ranger School and formerly helped supply International Paper Co. with pulpwood from Alabama. He is a native of York, Ala.

G. Edward Gibson
Area Supervisor—Woodlands

Comes to Marathon Southern from the wood control department of Gulf States Paper Co., Tuscaloosa. Mr. Gibson holds a Bachelor of Science degree in forestry from Alabama Polytechnic Institute and has broad experience in land acquisition, timber cruising and tree stand description.

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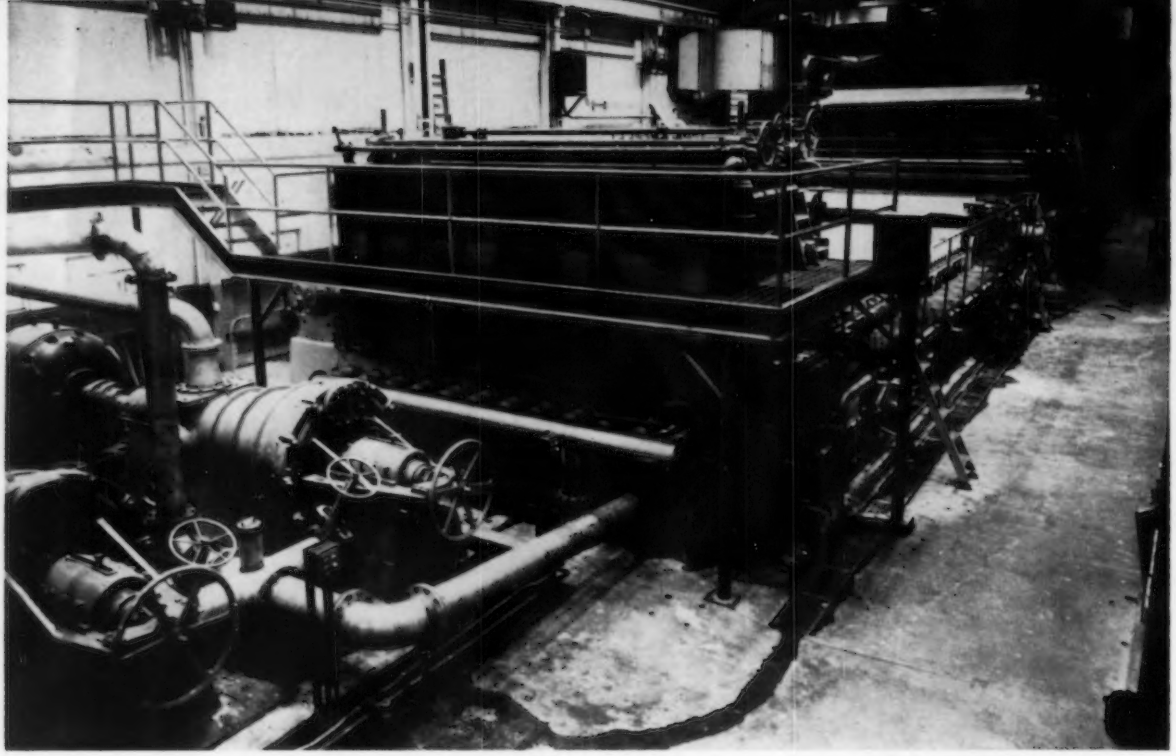


Chillicothe's New Paper Machine Incorporates Latest Design Features

Ernest F. Barker
Special Correspondent
Paper Trade Journal

Chillicothe Paper Co.'s new No. 4 paper machine in Chillicothe, Ohio is in production. The first production run was made on the machine on March 26. Performance of the huge, ultra-modern paper machine was smooth and satisfactory in every respect at start-up, according to Roy Zellers, Chillicothe Paper Co. vice president, who devoted almost his entire time to the installation of the new machine in recent months.

Initial planning for the installation of No. 4 machine at Chilpaco began in December of 1955. Actual installation work began in May of last year. Start-up of the new Rice Barton machine was originally scheduled for the fall of 1957, then was rescheduled for start-up in early April of this year because of current market conditions.

The engineering work concerned with the new machine and the stock preparation system was handled for Chilpaco by Chas. T. Main Co. and erection work was performed by Eichleay Corp., Pittsburgh, Pa. Personnel at Chillicothe Paper Co. most concerned with the installation project were Roy Zellers, vice president and W. A. Thomas, mill manager.

Since April Chilpaco's No. 3 machine has been shut down, enabling the mill to maintain an average six-day work week. No. 3 machine was shut down because current business conditions do not justify running all four paper machines, according to Austin P. Story, president of the Chillicothe Paper Co. Rather than operate its four machines on only five or even four-day schedules, the mill chose to shut down No. 3 with the expectation of running all four machines as soon as there is a sustained improvement in business conditions.

Machine Summary

Chilpaco's No. 4 is a 188-inch wide, 313-foot long fourdrinier machine and is expected to reach speeds as high as 1,000 feet per minute. The new paper machine has three dryer sections and two calender stacks. A set of breaker-rolls divides the first and the second dryer section and a horizontal size press divides the second and the third dryer sections. The machine has 40 paper dryers and 12 felt dryers. It trims 174 inches and it has two press sections. Its main drive is rated at 900 horsepower. Total weight of this ultra-modern machine is approximately 2,000 tons. Chillicothe Paper Co. will use its new No. 4 machine to manufacture offset and papeterie grades, not unlike those it now manufactures. Since starting up the machine has operated on high quality offset grades and papeterie orders in the 50 to 175 pound (25 x 38 — 500) range.

Stock Preparation System

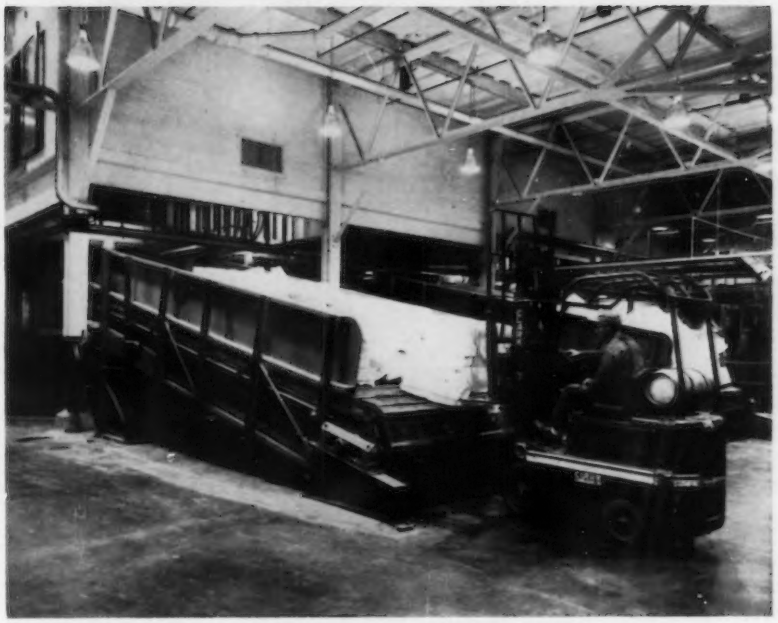
A few months before No. 4 machine was completed, Chilpaco installed an en-

tirely new stock preparation system which now jointly serves Nos. 3 and 4 paper machines. No. 3 paper machine was connected to the new system in November of last year. One of the highlights of this new stock preparation system is a graphic control panel which controls a new Trimbey stock and chemical proportioner. The control panel is one of the most modern and up-to-date installations of its kind in the industry. With this panel one operator can control the entire furnish system of both machines, including short and long fiber furnish; broke and blending chest flow; chest agitators; machine chest level; and alum, clay, calcium sulphate, titanium dioxide, Celite, rosin size and color additions. The control panel is 20 feet long, 6 feet 6 inches wide and 18 inches deep. Three months were required to install the panel and its instruments, which are mainly by Foxboro. The panel also includes consistency controls, chest level indicators and controls and chemical storage tank level indicators.

The new stock preparation system begins with two 5,500-pound stainless steel clad Shartle hydrapulpers. Pulp bales are fed into these hydrapulpers with two large conveyors which makes it possible to load a full hydrapulper batch at one time.

Piping throughout the entire stock preparation system consists of stainless steel. All pumps are of non-corrosive materials and all chests are constructed with glazed tile. All major stock lines in this system are equipped with standard DeZurik consistency regulators so that the raw stock (untreated stock) and slushed broke are kept to close consistency tolerances, conducive to a uniform product.

From the hydrapulpers the stock is pumped to three 15,000-pound capacity raw stock storage chests: bleached soda, bleached sulphite and bleached kraft. From the storage chests the stock is pumped through four Jones Fibermaster refiners which have sufficient capacity to handle stock for the two paper machines served by the system. From the Fibermasters the stock is pumped into three 5,000-pound capacity refined-stock chests sufficiently large to handle the stock required by both paper machines. From the refined stock chests the stock is pumped to the Trimbey machine metering system. Once through the Trimbey, the stock is gravity-dropped into a 1,500-pound stock blending chest and then immediately into the two (No. 3 and No. 4) 3,000-pound machine chests. A stock blending chest of larger capacity is unnecessary because the stock system becomes at this point a continuous operation with stock moving continuously from the stock chests through the blending chest into the machine chests.

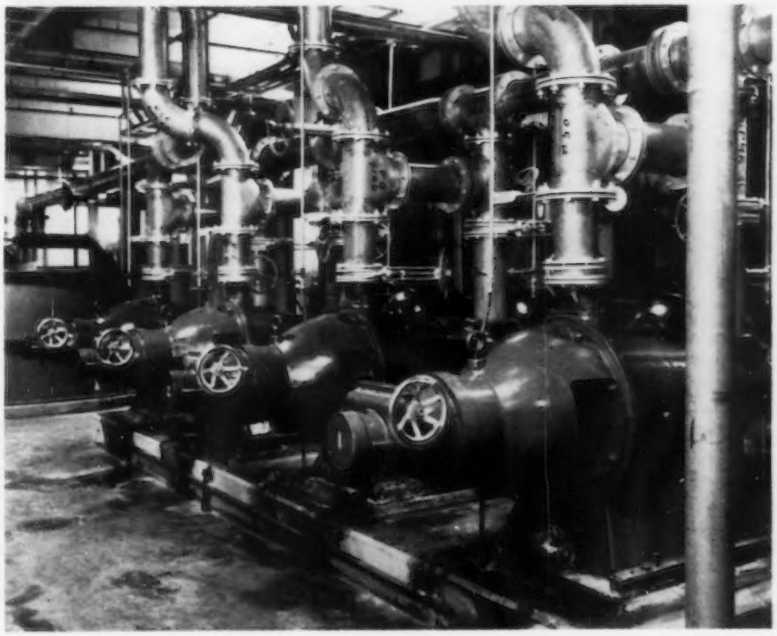


LARGE CONVEYORS feed pulp bales into 5500-pound capacity Hydrapulpers. A full batch may be loaded at one time in this manner.

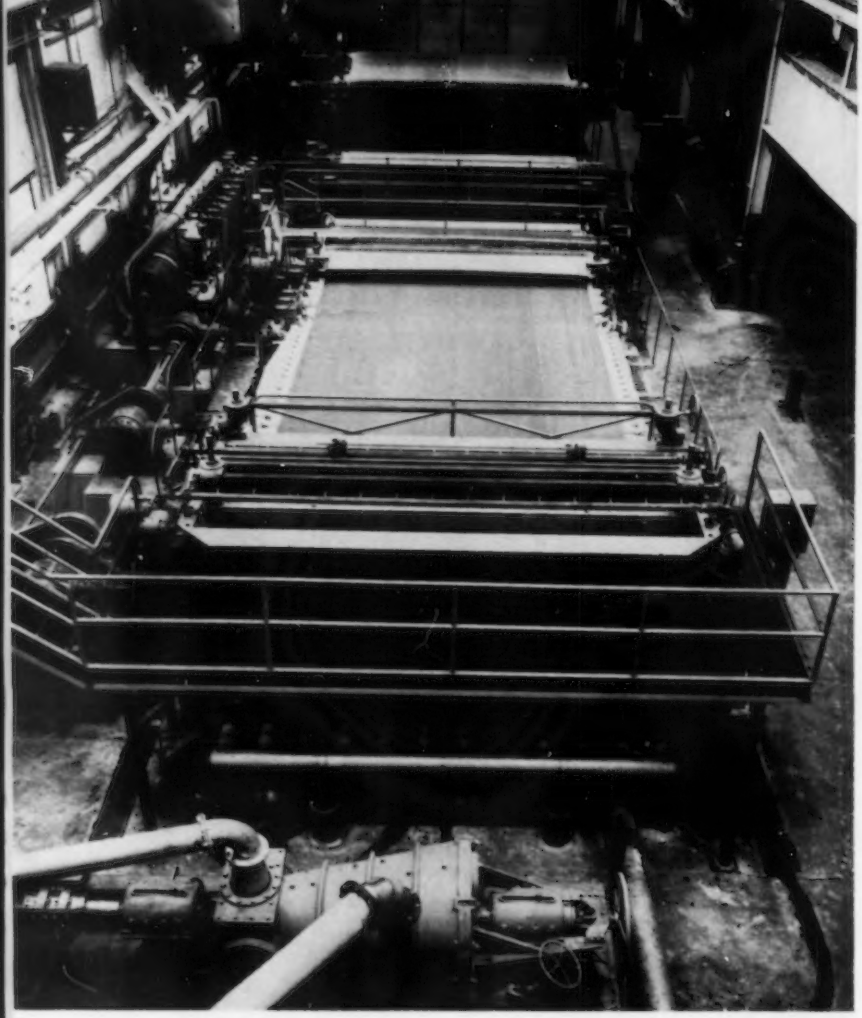
From the No. 4 machine chest the stock is fed through a bank of three Miami No. 5 Shartle jordans, followed by a series of Bauer Centricleaners and then directly to the machine head box. The Bauer cleaner installation consists of nine 12-inch 500 g.p.m. primaries, one 12-inch 500 g.p.m. secondary and one 6-inch 90 g.p.m. tertiary.

Machine Wet End

No. 4 machine is equipped with a



FIBERMASTER REFINERS follow the pulpers, have sufficient capacity to handle stock for both No. 3 and the new No. 4 machines.



WET END of new machine viewed from control panel mezzanine level. Wire is 93 feet long, 188 inches wide. Machine trims 174 inches.

Valley head box and inlet and three Selectifier screens. The fourdrinier part is of the movable type and an air motor is used for running the fourdrinier in and out for wire changes. The 36-inch diameter suction couch is a Beloit cantilever type. The wire is 93 feet long, 188 inches wide and it permits a maximum trim of 174 inches. The table rolls are 8 inches in diameter and the dandy roll is 20 inches in diameter. The fourdrinier section is equipped with seven oscillating suction boxes. The machine is also equipped with Rice Barton dual breast rolls which permit use of somewhat smaller rolls at the shake table. According to Mr. Zellers, this in turn allows for less gap between the forming board and the breast roll and table rolls. One advantage of this arrangement is that it keeps the wire from whipping, because of the shake action, at the point where the stock is delivered from the Valley inlet to the wire.

The couch pit of this machine contains an agitator and a pumping system for easier control of trim and broke stock in the couch pit. This arrangement, although not new in modern paper mills, is the first such system at Chilpaco. It is expected to result in important stock savings.

The machine has separate vacuum pumps for the suction boxes, suction couch, first press and new telescopic type felt conditioners. The wire guide is pneumatically operated, instead of the more conventional mechanically operated wire guide arrangement.

A mezzanine deck above the wet end contains the machine's saveall installation, the graphic control panel and Trimbey proportioner. The mezzanine deck also contains the wet end electrical system substation, which is completely air conditioned. No. 4 machine is equipped with an Oliver American vacuum saveall. Chilpaco operates this equipment with eight vacuum disks but the equipment is designed to hold ten vacuum disks for efficient white water stock and filler reclamation at peak loads. The Oliver American vacuum filter is a "sweetening stock" saveall type.

Press Section

All of the machine's table, press and felt rolls are rubber covered. Rubber covering material for the table rolls was furnished by Manhattan Rubber Co.; felt roll covers are by the Tyer Rubber Co. and the press rolls were covered by Cincinnati Rubber and Stowe-Woodward companies.

The first press consists of one hydraulically loaded Rice Barton suction press with a 30-inch diameter Beloit suction roll. The second press is a reverse press equipped with 31-inch diameter rolls, also hydraulically loaded. The press section also includes a set of smoothing rolls of 31-inch diameter.

The reverse press and smoothing press rolls are interchangeable with regard to bearing mountings and face length.

Dry End

Chilpaco's new No. 4 paper machine is equipped with 40 five-foot diameter paper dryers and 12 felt dryers. These dryers are equipped with new Cleveland Worm & Gear enclosed drives which makes the backside nearly as accessible as the front side of the machine. Mr. Zellers also told *Paper Trade Journal* that the new Cleveland Worm & Gear enclosed drive installation appears to be considerably quieter than open gear type dryer drives.

The dryer section hoods are by J. O. Ross Co. The system includes the latest type of equipment for bringing air into the machine room and the aisles and for discharging the air against the felts, which makes for more efficient drying. The dryer section is equipped with a Ross-Gruene system which consists of warm air nozzles blowing vapor out of pockets between the dryers.

Two vertical 31-inch diameter rubber covered rolls have been installed between the first and second dryer sections. These breaker rolls consist of highly polished, zero P & J hardness, rubber rolls which occupy the space normally required by two bottom and one top dryers. A Rice Barton horizontal size press divides the machine's second and third dryer sections. The horizontal size press rolls are 32 inches diameter by 183 inches face width. The first roll is covered with one-inch thick, 20 P & J Plastometer rubber and the second roll is covered with ½ inch thick, zero hardness rubber.

Two open-sided eight-roll calender

stacks follow the last dryer section. The 32-inch diameter king rolls in these two stacks weigh approximately 25 tons. The queen rolls and top rolls have 18-inch diameters and the five intermediary rolls are 14 inches in diameter. The stacks are equipped with oscillating Lodding doctors. The machine's dryer doctors were also supplied by Lodding. All parts of Chilpaco's new No. 4 paper machine are equipped with anti-friction bearings.

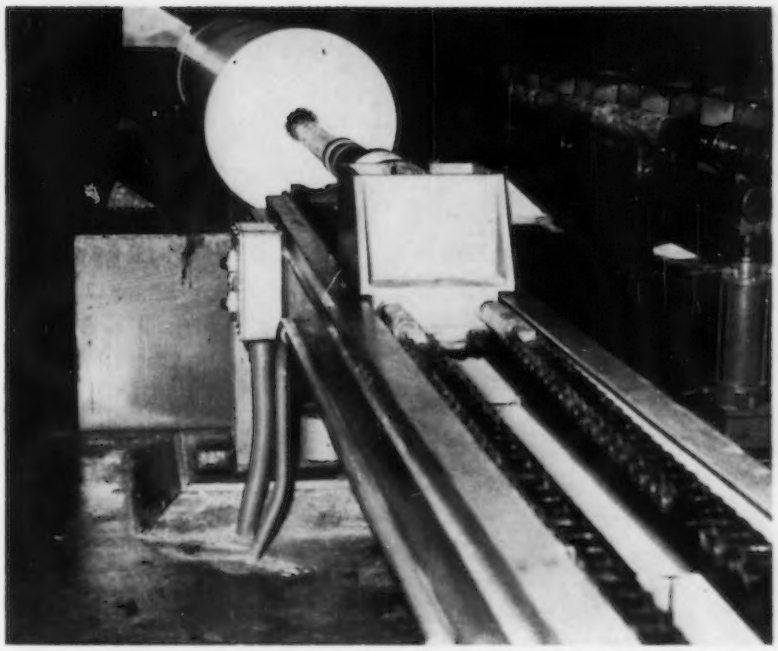
The calender stacks have a special size, 15-foot diameter, Hydrapulper installation immediately below the machine operating floor. This Hydrapulper was custom-made by the Shartle Div. of Black-Clawson for Chilpaco to fit into the available basement space below the calenders. It is equipped with a conveyor for broke feeding in the basement. Dryer, calender and reel broke and all shavings are dropped into the pulper to be slushed and pumped back to the broke storage chest. Automatic control instruments are utilized for pulper operation. Accordingly, the pulper turns itself on and off as required. White water addition is controlled automatically to maintain uniform consistency, and a consistency regulator is included in this system. From the pulper the slushed broke pulp is pumped back to the stock preparation system for storage in a 6,500 pound capacity broke chest.

Winder Area

No. 4 machine is equipped with a drum type Rice Barton uniform speed reel of the horizontal type. The reel drum is 42 inches in diameter, able to wind 60 inches of paper which, in Chilpaco's case, would weigh approximately 10,000 pounds in regular machine finish grades.

The machine has a Rice Barton rewinder, with 18-inch diameter by 188-inch face drums. Maximum speed is 3,500 feet per minute and all bearings are anti-friction. The rewinder is equipped with a motor drive on each drum and regenerative braking. The installation includes a separate unwinding stand.

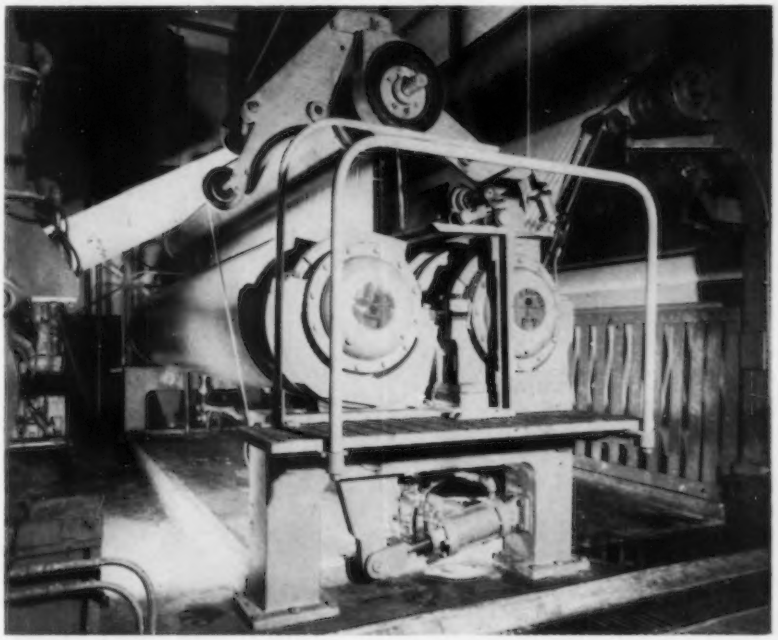
A feature of this part of the installation is a Rice Barton shaft puller, consisting of a lift table which is hydraulically operated from the floor level to the winder drum level and electrically operated arms which extend from the lift table to the winder. A roll ejector on the winder pushes the roll of paper out and onto the arms from where it is rolled onto the lift table. The lift table is then lowered until the winder roll shaft is in line with the shaft puller mechanism. After coupling the shaft puller mechanism to the winder shaft, the latter is pulled from the roll, mechanically. The same procedure in reverse takes place for inserting the shafts.



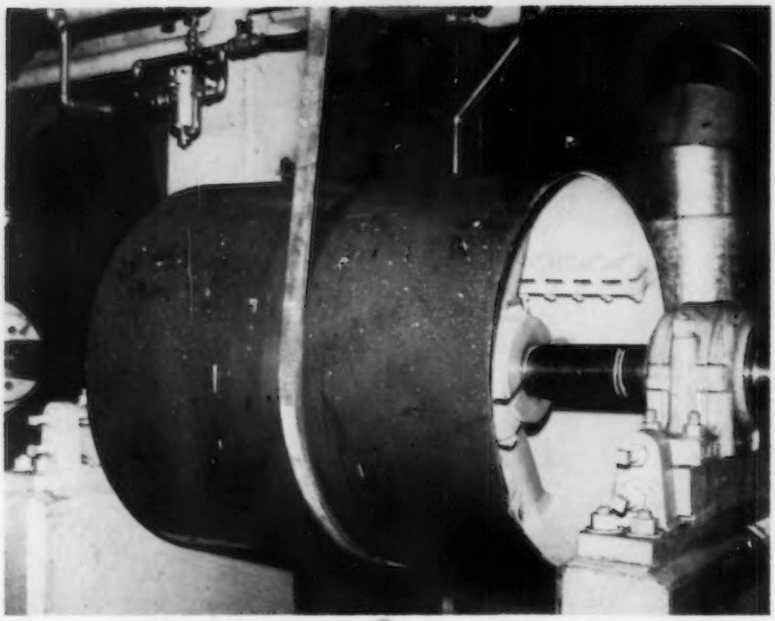
SHAFT PULLER is feature at winder end of machine. Hydraulically operated lift table receives roll from winder, then lowers roll until shaft is in line with puller.

Miscellaneous Aspects

An interesting "miscellaneous aspect" of this machine installation concerns the machine's drive belts. Belts for the machine were furnished by J. E. Rhoads & Sons Co., who supplied a relatively new plastic belting material which performs the belting requirements of this machine with one-third of the width normally required by conventional



HORIZONTAL SIZE PRESS is located between second and third dryer section. Cleanliness, ease of roll change and higher coating solids are said to be among its advantages.



PLASTIC BELTING MATERIAL is said to perform belting requirements with one-third of width normally required. Belts on No. 4 range from two inches to five inches wide.

leather belting materials. The belts on No. 4 machine at Chilpaco range from 2 inches to 5 inches in width. The widest belts are installed on the heaviest drives, the calender and wire section drives. The dryer drives are equipped with 4½-inch belts, the first and second presses with 3-inch belts and the breaker rolls and smoothing press with 2-inch belts. "This new material apparently opens an entirely new field, and we think it is quite interesting that it is now possible to drive with such narrow belts" Mr. Storey told *Paper Trade Journal*.

Instrumentation on No. 4 machine includes the following: drying is controlled by a Stamm drying system in the first and second dryer sections; after the horizontal size press, in the third dryer section, a Foxboro Moist-O-Graph system has been installed; electric eyes, which signal web breaks, have been installed at the reel and at the horizontal size press; machine and section starting, stopping, and doctor oscillation control, as well as hydraulic loading of the presses and calenders are all controlled from machine aisle consoles. Chilpaco has so far not installed basis weight measuring or control devices of the radioactive-isotope type, because it is believed that the heavy reliance on consistency regulators installed at strategic points throughout the stock system will prove satisfactory with regard to accurate weight control.

OLIVER AMERICAN VACUUM SAVEALL provides efficient reclamation of stock and filler from white water.

White Water System

Chilpaco's No. 4 machine white water system is closed to a point where very little fresh water is used in the system. Fresh make-up water is added by liquid level control in the seal water tank, a tank which collects the seal water from the machine's vacuum pumps, and the cooling water used at the various hydraulic pumps. This collected seal water is used in the DeZurik high pressure showers in the fourdrinier section. Fresh water is used in the head box sprays. Water from the seal water tank is also used for the cutting showers on the Dorr-Oliver saveall. The cutting shower on the wire is fresh water. One particularly interesting aspect is the fact that white water which is removed from the sheet in the press section is also included in the closed white water system, similar to the white water from the couch roll. Press section white water is added to the main white water system which is passed through the machine saveall.

Contractors and Major Suppliers

The following firms were contractors and major suppliers in this paper machine erection project: Detail engineering, drafting and construction supervision: Chas. T. Main, Inc. Building, concrete, masonry: The Austin Company. Machinery erectors: Eichleay Corp. Piping contractors: Kaighin & Hughes, Inc. Electrical contractors: Tennessee Armature & Electric Co. Pipe covering and insulation: Southern Ohio Insulating Co. All tile chest tanks: Stebbins Engineering & Mfg. Co. All Hydrapulpers: Black-Clawson (Shartle Div.). Conveyors to Hydrapulper: Jeffrey Mfg. Co. Refiners "Fibermasters": E. D. Jones & Sons. Jordans: Black-Clawson (Shartle Div.). Stock and chemical meters: Trimbey Machines, Inc. Head box and inlet: Valley Iron Works Co. Paper Machine: Rice-Barton.

Chilpaco president Austin P. Storey examines first sample from No. 4.

Watching start-up are W. A. Thomas, mill manager (left) and N. B. Seidensticker, vice president and general manager.

Making a jordan setting during start-up is Roy Zellers, vice president.

Checking draw of first narrow web in calender section is Kon Matchuk, general superintendent.

Pumps: Goulds, Ingersoll-Rand and Allis Chalmers. Motors: General Electric and Reliance Electric and Engineering Co. Switch gear and transformers: General Electric. Motor control centers: Allen Bradley Co. Stock cleaning equipment: Bauer Bros. Control equipment: Foxboro and Stamm Co. Stainless steel piping and tanks: Felker Bros. and Brown-Singer. Vacuum pumps: Nash Engineering. Machine hood and ventilation: J. O. Ross. Overhead cranes: Northern Eng. Works and Wright. Air compressor: Ingersoll-Rand. Belts: J. E. Rhoads and Son. Lubrication: Socony-Mobil Oil Co. Consistency regulators: DeZurik. Stationary and oscillating doctors: Lodding Engineering Corp. Saveall: Dorr-Oliver. Agitators: Improved Machinery and Mixing Equipment Co. Suction box vacuum control: A. E. Broughton. Winder: Rice Barton. Stock screens: Black Clawson (Shartle Div.).

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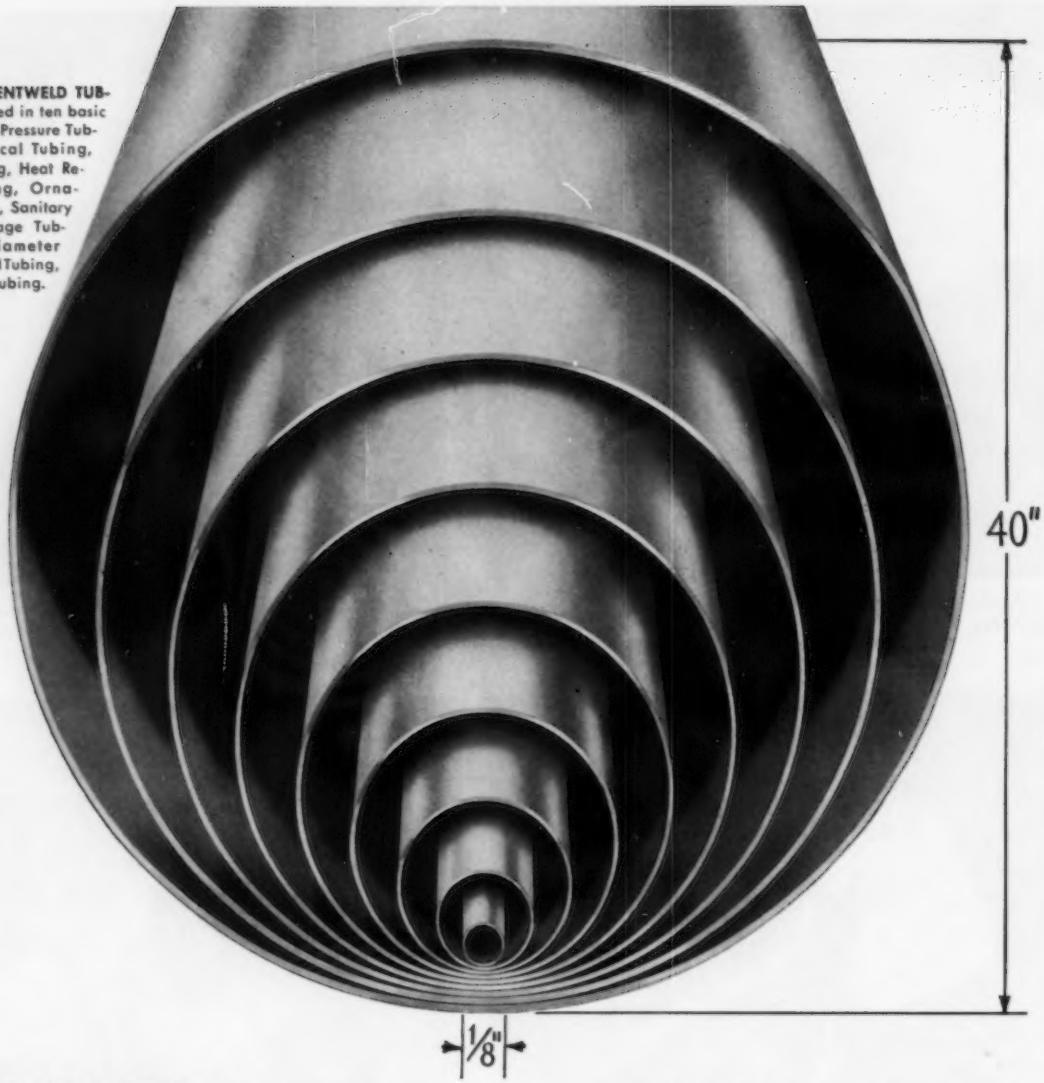

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To insure that Trentweld tubing is of the highest quality attainable, a rigorous quality control program is carried out. Samples of each lot are tensile tested. Periodic tests — flattening, reverse bend, flare and flange, coil, and pressure — are conducted. Rigid corrosion tests are made on all lots intended for corrosive applications. When requested, a unique "single-wall" X-ray inspection is made as your final assurance of a sound, uniform product.

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No. 8 of a series.

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Printers prefer coated paper made with Dow Latex because they know it has the qualities which will assure sharp, clear reproduction every time. And paper manufacturers and converters find Dow Latex makes uniform quality production easier to obtain.

Major paper manufacturers are now offering many grades of quality coated papers made with Dow Latex. They use it for machine and off-machine coating for both dull and gloss grades. For more detailed information on coated paper using Dow Latex, check your paper supplier or write THE DOW CHEMICAL COMPANY, Midland, Michigan, Coatings Sales Dept. 2155B.

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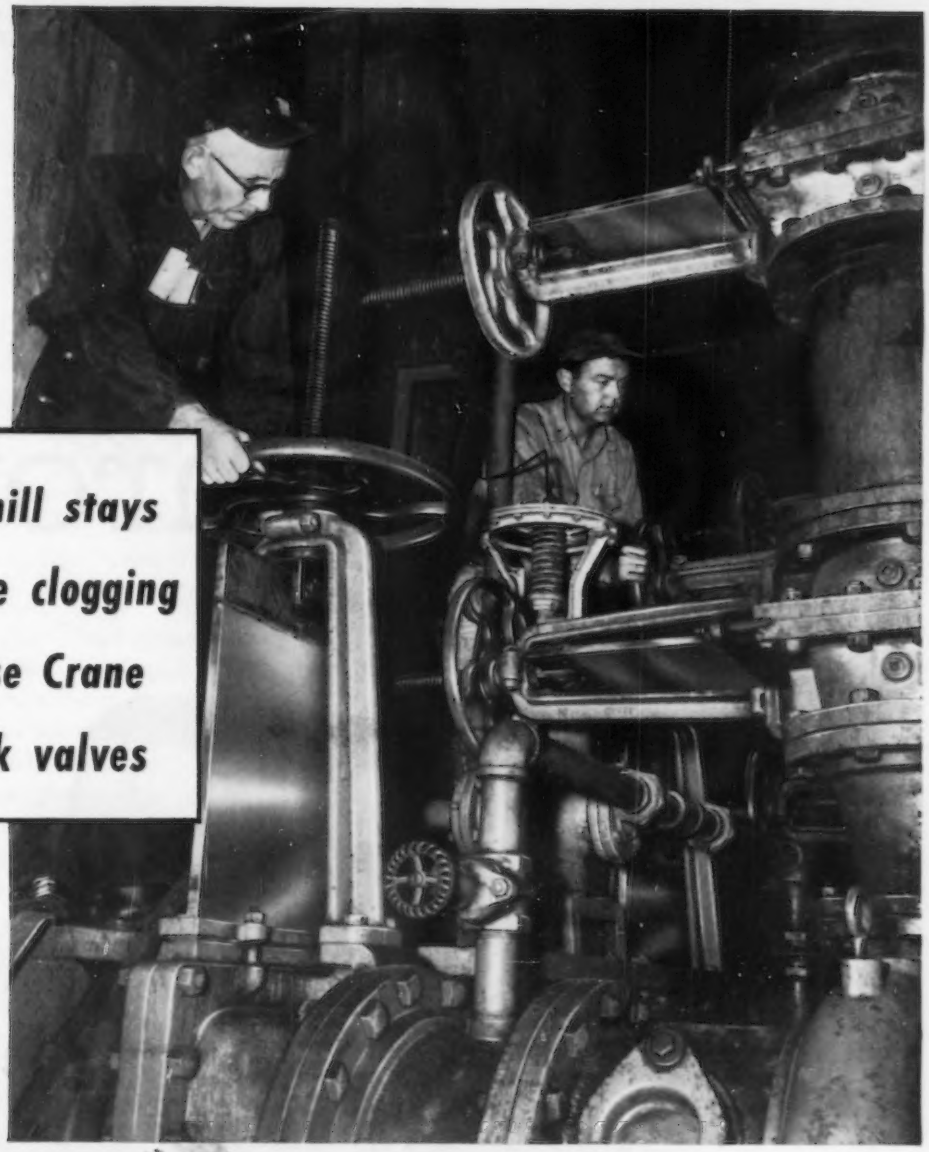

Another mill stays free of line clogging with these Crane pulp stock valves

This scene is in a leading Southern kraft mill. The valves—10- and 18-inch Crane pulp stock valves—are on lines from brown chest to screens.

These valves were installed 15 years ago and have been operated approximately once a week since then. More important, they demonstrated to the mill management that clogging of stock lines due to valve leakage and entrapment of fibers can be avoided completely.

So well have these Crane valves performed that the mill standardized on them several years ago. As a result, it has since had no problems with valve leakage or stock line clogging.

The unmatched efficiency of Crane pulp stock valves is in their highly developed "combing" and shearing-action seating design. There's no jamming of fibers under the disc; the Crane knife-edge cuts through them to seat tightly. Crane no-bonnet design leaves no place for pulp impaction in the valve body.

Ask for Circular AD-2156

This circular will show you quickly why Crane valves work where others fail. It also gives specifications on the full Crane line, including the all-new stainless steel, short face-to-face pattern. Ask your Crane Representative for a copy or write to address below.

CRANE VALVES & FITTINGS

PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill.—Branches and Wholesalers in All Areas

overcome show-through

SHOW-THROUGH RESISTANCE of "Ti-Pure" LW is demonstrated in the above illustration with sheet at right. Papers pigmented with "Ti-Pure" LW display minimum show-through . . . an important sales advantage for your lightweight papers, particularly.

Progress in Pigments

DU PONT TI-PURE® LW

provides maximum show-through resistance for your lightweight papers

Publishers . . . faced with rising postage costs . . . can maintain quality and reduce magazine and catalogue weight by using a lower basis weight sheet made with "Ti-Pure" LW titanium dioxide pigment. This anatase pigment brightens and opacifies . . . will help you meet rigid customer requirements for sharp color reproduction. Result—maximum show-through resistance in a lower basis weight sheet and *reduced postage costs.*

EASILY DISPERSED—Added to the beater, "Ti-Pure" LW displays even distribution throughout the sheet and good wet-end retention. To get maximum opacity you can rely on this even distribution throughout the pulp prior to formation of the paper web. Added at the calender or size press, "Ti-Pure" LW combines ease of dispersion with low water and adhesive demand to produce glossy coatings of high brightness and minimum show-through.

TECHNICAL ASSISTANCE is always available from Du Pont to help you solve a pigmenting problem. Our large, new, completely equipped paper laboratory is at your service. For further information, consult your Du Pont Pigments Representative, or write: E. I. du Pont de Nemours & Co. (Inc.), Pigments Department, Wilmington 98, Del. In Canada: Du Pont Company of Canada (1956) Limited, P.O. Box 660, Montreal, Quebec.

In the production of your colored coated papers, too . . . remember Du Pont's line of quality pigment colors.

PIGMENTS DEPARTMENT

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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

. . . from Du Pont

'Little' Machines Play Big Part at C-Z's Antioch Plant

Crown Zellerbach provides efficient customer service by consolidating papermaking and converting operations near a major market area.

Paul D. Van Derveer
Associate Editor
Paper Trade Journal

The construction of Crown Zellerbach's $32 million papermaking and converting operation at Antioch, Calif., was based on the concept of producing paper in the shadow of a major market area rather than in the shadow of the tree. Located only 50 miles from San Francisco, it is several hundred miles from its supply of wood pulp. Crown-Zellerbach's purpose in this operation is to provide more efficient customer service, and the system is proving physically practical and economically sound.

First to be completed in this project were the huge kraft paper machine and the multiwall bag plant, both of which began production in September, 1956. The multiwall operation was moved over from Crown Zellerbach's nearby San Leandro converting operation. A corrugated box plant for the company's Gaylord Container Division started production in May, 1957, and the rest of the San Leandro Converting Division (mostly towel, tissue and grocery bag equipment) was consolidated with the Antioch installation in August, 1957. A "little" towel machine began operation at Antioch in December, 1957 and a "little" tissue machine started up in February of this year. Installation of a second "little" tissue machine will probably be completed in August.

Crown Zellerbach transports pulp 1100 miles from its Elk Falls plant on Vancouver Island by a special sea-going tanker to the Antioch mill where it is made into paper on a 260-inch Beloit machine. Highly interesting, this portion of the Antioch operation was thoroughly described in *Paper Trade Journal's* report of January 28, 1957.

The big project is now nearly completed, and of interest to many will be

the following description of the "little" machines and the converting operations.

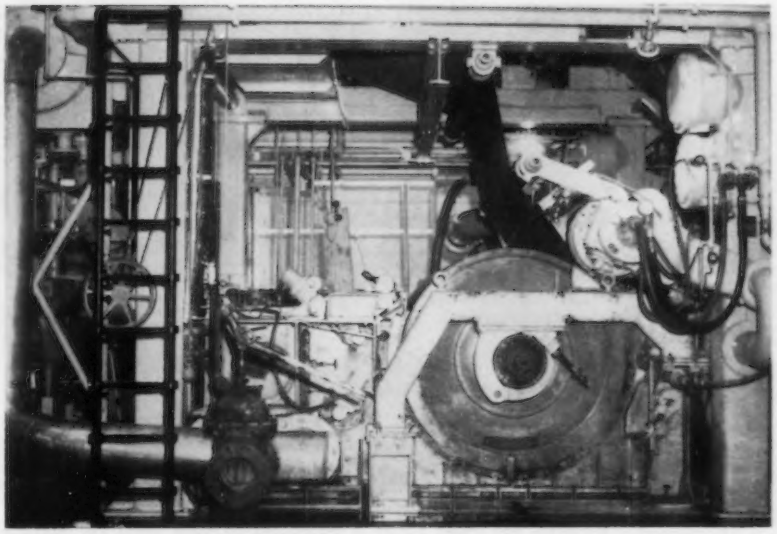
"Little" Machine Operation

Called "little" because they occupy less than 2000 square feet of floor space, the towel and tissue machines play a big part in the company's move to provide more efficient customer service in major marketing areas. There are two of the small paper machines now in operation at Antioch: the No. 2 machine, producing towel and napkin stock, began operation in December, 1957; the No. 4 machine, producing tissue, was started in February, 1958. A third machine, on tissue production, is currently being installed, and will soon be in operation, in August, 1958. The entire production of these machines goes to the immediately adjacent converting plant where it is processed and packaged. Capacity of the No. 2 machine is 50 tons per day. The No. 3 and 4 machines will each produce approximately 20 tons of tissue per day.

Bleached pulp for the Antioch "little" machines is produced at Crown Zellerbach's Camas, Wash., mill. Received in bales, there are several types of pulp used; among them bleached sulphite, a blend of caustic treated sulphite and groundwood, and bleached kraft. Pulp is moved from the storage area, just outside the stock preparation area, by a side grip lift truck to a 60-inch wide conveyor belt feeding one of the three E. D. Jones Hi-Lo pulpers. Color of the paper to be produced is controlled by the choice of furnish and color added at the pulper. These pulpers have a capacity of about 3000 pounds at 5½ per cent consistency, and are equipped with remote operated dump valves. Piping in this area and throughout the stock preparation area is stainless steel. The arrangement of piping and valves is extremely versatile, allowing the pulpers to supply any of the three paper machines.

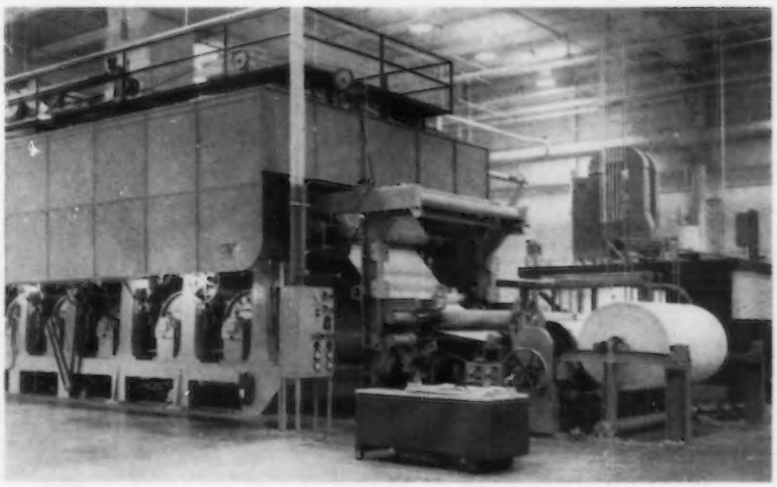
Tissue Machine

Stock for No. 4 machine, pulped at 5½ per cent consistency, is pumped to a beater chest and then to a machine chest where consistency is approximately 4½ per cent and capacity 4000 pounds. From the machine chest, stock is pumped to a De Zurik consistency regulator and next goes to a Jones Stockmaster driven by a 75 h.p. Reliance a.c. motor. From the jordan, stock goes to the suction of the fan pump which is located in a pit before the machine. White water make up is supplied directly to the fan pump from a pit below the machine. The fan pump, driven by a 225 h.p. motor, pumps stock at headbox consistency to two

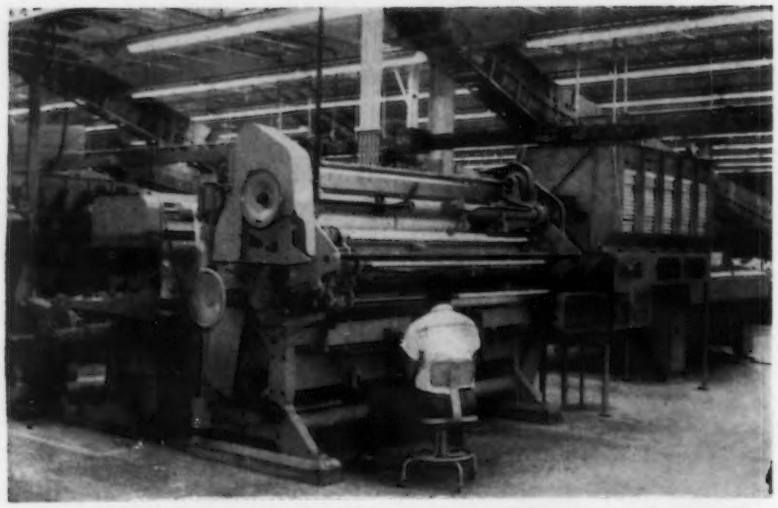


STEVENS FORMER utilizes fourdrinier-type slice, web is formed on cylinder.

TOWEL MACHINE has dryer section in addition to Yankee dryer.

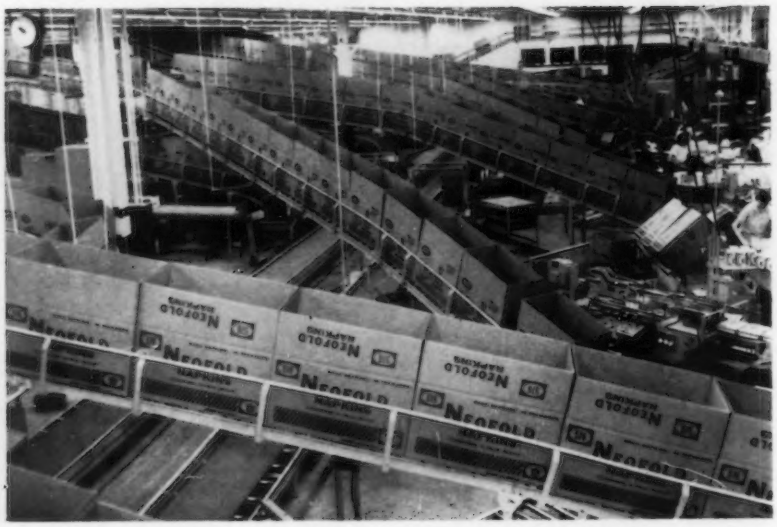


SLITTERS are provided just ahead of reel. No rewinder is used in machine room.



AUTOMATIC WINDER for toilet tissue is equipped to give shear-cut tearline.

ANOTHER SECTION of the converting area.



CONVEYOR SYSTEM facilities set-up, segregation, packing, sealing and storage.

Miami Selectifier screens which are driven by 15 h.p. motors through a cone gear drive.

Screened stock enters No. 4 machine headbox through a header, and is formed into a web by flowing stock under pressure through a throat onto the cylinder of the Stevens Former in a manner similar to the slice of a conventional fourdrinier. Water draining through the wire is removed from the cylinder and goes to a white water pit below the machine. The sheet is formed completely on about 10 inches of wire length on the cylinder and is transferred almost immediately after formation to a pickup felt. The Stevens Former, as well as the rest of the machine, was supplied by Beloit Iron Works. It is 100 inches wide and operates at speeds up to 1400 feet per minute.

The wet web is carried by the pickup felt into contact with a 10-foot diameter by 105-inch wide Yankee dryer, and after completing the circuit of the dryer is peeled off by the creping doctor. The dry sheet of tissue next passes over a spreader roll and through a 2-roll, 14-inch diameter calender to the reel which takes rolls up to 84 inches wide. One roll on each calender is Stonite, the other rubber covered. The sheet is fed to the reel by rope carrier and air jet since the machine operates at high speeds. The rolls of tissue are removed by a Hevi-Lift overhead hoist and simultaneously weighed. The weight is indicated on a Toledo scale located near the reel. The rolls are next placed in a storage area between the paper machine and adjacent converting plant.

The entire operating mechanism of this machine is controlled either automatically or remotely. These controls and recorders are located primarily at a single instrument panel beside the machine while a few controls are located at the reel station. Only two men are needed to operate No. 4 machine; one is the machine tender, the other a back tender. Another man working in the stock preparation area supplies stock for this machine as well as No. 2, and later will handle the third machine when it is installed. No. 2, the towel machine, with a larger dryer section has a utility man to aid the machine and back tender.

Towel Machine

No. 2 machine, on which towel stock is produced, is similar to No. 4 except that it has additional jordaning and screening capacity; it also has two felts on the wet end for greater water removal rather than one felt as on the tissue machine. Besides a Yankee, the No. 2 machine also has a section of

48-inch diameter dryers equipped with top and bottom felts.

The towel machine, like the previously described tissue machine, is equipped with hoods over the wet end and Yankee dryer. In addition, it has another Transite hood over the dryer section. Slitters are provided just ahead of the reel, and rolls of a variety of lengths, either napkin or towel stocks, are supplied for the converting operation without the use of a rewinder in the paper machine room. The rolls are removed from the machine by overhead hoist. A Yale & Towne roll grab lift truck picks up the finished rolls, turns them upright and stacks them on end in the storage area behind the machine.

MULTIWALL BAG OPERATIONS were transferred from San Leandro as part of consolidation measures.

Converting

The converting plant at Antioch includes towel, tissue and multiwall bag operations. The equipment was moved from San Leandro, thirty miles away, in order to consolidate papermaking and converting operations. The move began with transfer of the multiwall bag operations in September 1956. Most of the rest of the equipment, including grocery bag machines, napkin and towel machines and fruit pad and fruit wrap machines were transferred in August and September of 1957.

Covering 336,000 square feet, the plant also includes a grocery bag converting department as well as the previously described "little" paper machines. The plant will ultimately produce 40 tons of tissue stock and 50 tons of towel stock per day from the "little" machines. However, converted tonnage will be considerably greater than this since jumbo rolls of stock for facial tissues and other products are shipped in from other Crown Zellerbach mills.

Converting equipment in the plant includes seven rewinders. Four of these, an 88-inch automatic unit for household towels, a 90-inch automatic winder for Chiffon toilet tissue, and two 90-inch automatics for Zee toilet tissues are equipped to give a new shear-cut tearline, said to allow easy, straight tearing. The remaining three rewinders are 81-inch automatic units for toilet and industrial roll toilet tissue. They will also be equipped for shear cut by October.

Other major converting machinery includes four single-fold towel interfolders and eight napkin folders for standard and dinner size napkins, and industrial and bulk napkins.

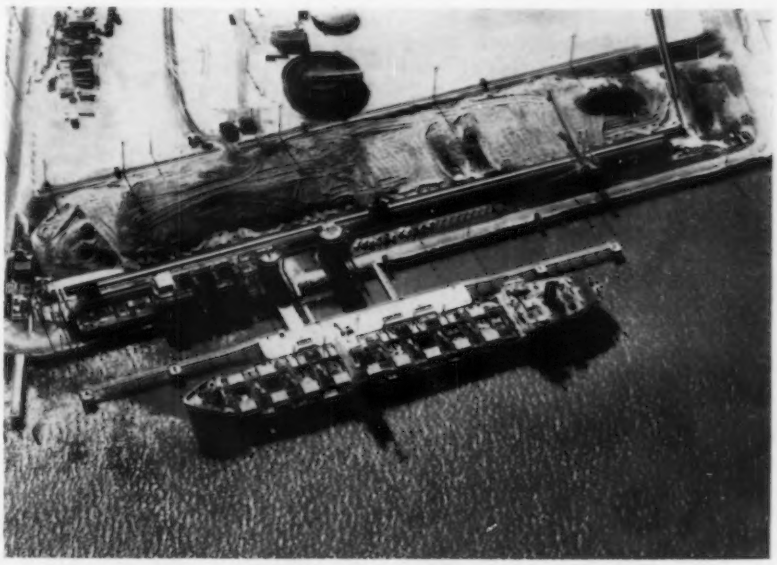
Highly mechanized, the plant includes machinery and handling systems which make cores for toilet tissues and Zee towels and deliver them directly to the rewinders. The conveyor system at the plant is a materials handling masterpiece. Its function is to facilitate set-up, segregation, packing, sealing and storing of cases of consumer products. In operation, knockdown cases are hoisted to the mezzanine floor of the plant by lift truck where they are set up and fed by gravity conveyors to each individual converting machine. Here the cases are filled with product before returning to the mezzanine by power conveyor.

The cases are next routed by push button into specific segregation conveyors according to product. When a load of any one product has accumulated, it is run by power conveyor, through the case sealer and out on another power conveyor into the warehouse.

Converting Paper from the "Little" Machines

The converting plant handles the full output of both the tissue and towel "little" machines. Brief descriptions of some of the operations are as follows:

1—Rolls of towel stock 45 inches in diameter by 88 inches in length are moved from No. 2 machine storage area to a Paper Converting Machine rewinder and slit into eight 11-inch long rolls with shear-cut perforations. These small towel rolls are conveyed to a single roll wrapper with web feed wrap and end seals. Several colors of toweling are produced, and the wrapped roll then goes into a carton which is auto-



SPECIALLY BUILT TANKER brings shredded kraft pulp from Elk Falls, Canada to supply Antioch's big 260-inch paper machine. Unbleached kraft paper from this machine is converted at the plant.

matically case sealed by a Standard-Knapp machine. The box is conveyed to storage and shipping.

2—Napkin stock is also produced on No. 2 paper machine in rolls of 45-inch diameter. In this case the rolls are slit on the paper machine to widths of 9, 13, and 15½ inches, and transported to the converting plant where they are placed on a 3-deck Hudson-Sharp napkin folder handling three rolls at a time. This machine embosses the napkin with any one of a variety of designs. It handles various sizes and may be set up for several different types of fold. The napkins then are packed in boxes for sealing and conveying to storage. Some are bagged and wrapped in paper or cellophane on Hayssen automatic wrappers and then packed in boxes.

3—Tissue stock for Crown Zellerbach's "Silk" and "Zee" lines of toilet tissue is produced on No. 4 paper machine. The rolls from No. 4 may be 81-inch or 92-inch trim. All rolls of 81-inch trim are run on Hudson-Sharp toilet winders while those of 92-inch trim are run on Paper Converter winders. All the winders are automatically core loaded. The large 45-inch diameter rolls from the paper machine are wound into logs or cants and shear cut on the winder. The logs are conveyed to a log cutter which cuts rolls to lengths of 4½ inches. The small rolls are next conveyed to the wrapping machines where the "Silk" line is wrapped on a single roll Lawton wrapper, the "Zee" line on a 4-roll Hayssen wrapper. The rolls of toilet tissue are then packed in boxes and delivered by conveyor to case sealers, shipping and storage.

Box Plant

The CZ Gaylord Division began shipping container production at Antioch with the start up of the three million dollar corrugated box plant in May, 1957. This plant covers 175,000 square feet and is producing the first shipping containers ever made by a CZ division on the Pacific Coast. The plant, with a capacity of 40 million square feet per month, will add about ten per cent to the Gaylord Division's corrugated board production capacity.

Personnel

Resident manager at the Antioch plant is Gus Ostenson. Other key personnel are Carl Johnson, production planning supervisor; J. H. Quigley, paper mill superintendent; Tom Leedham, assistant to the resident manager; M. Wingrove, tissue machine superintendent; Ross Trieman, converting superintendent; E. G. Frederick, corrugating plant superintendent; and A. W. Wetmore, multiwall superintendent.

PRICES OF FIBERS

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$90.00/ —	§$90.00/ —
Bleached Gw'd. ...	$97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	$157.00/162.50*		$157.50/ —
Kraft, Blchd. Hdwd	152.00/ —		$137.00/ —		
Kraft, Semi-bleached	140.00/ —	140.00/ —			
Kraft, Unbl. ...	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd. ..	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*130.00/ —	
Sulphite, Unb'l. Gl'an		134.00/ —	†134.00/ —		
Sulp. Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

NEW YORK RAG MARKET

PRICES NOMINAL

New Domestic Cotton Cuttings

Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$13.50/$14.50
No. 1 Unblchd. Muslins	16.00/ 17.00
Blchd. & Unblchd. Underwears	15.00/ 16.00
No. 1 Light Cream Silesias	12.00/ 13.00
No. 1 Light Blue Overalls	7.00/ 8.00
Percales	6.00/ 6.50
No. 1 Light Prints	5.00/ 5.50
Suntan Khakis	5.75/ 6.75
Cottonades	3.00/ 3.50
No. 1 Washables	2.50/ 3.25

Old Domestic Cotton Rags

Delivered Mill Basis

	Per 100 lbs.
Mixed White	$3.25/$3.75
Cotton Pants & Overalls	2.25/ 2.75
Twos and Blues, Repacked	2.00/ 2.50
No. 2 Roofing	.60/ .75

COTTON LINTERS

Memphis Market

f.o.b. Oilmills

Week Ended July 18	Per 100 lbs.
Grade 1	n. a.
2	
3	$9.50/ $8.00
4	7.50/ 7.00
5 1 cut—felting	6.50/ 6.00
6	5.50/ 5.00
7	5.00/ 4.50

*Based on 73% cellulose.

OLD ROPE & BAGGING

(Prices to Dealers, f.o.b. N.Y.)

	Per 100 lbs.
New Burlap Cuts	$4.50/$5.50
Scrap Burlap	3.50/ 4.25
Australian Wool Pouches	5.00/ 5.50
Gunny	4.50/ 5.00
No. 1 Domestic Manila Rope	6.25/ 7.50
No. 1 Foreign Manila Rope	5.25/ 6.25
Domestic Sisal Strings	4.00/ 4.50

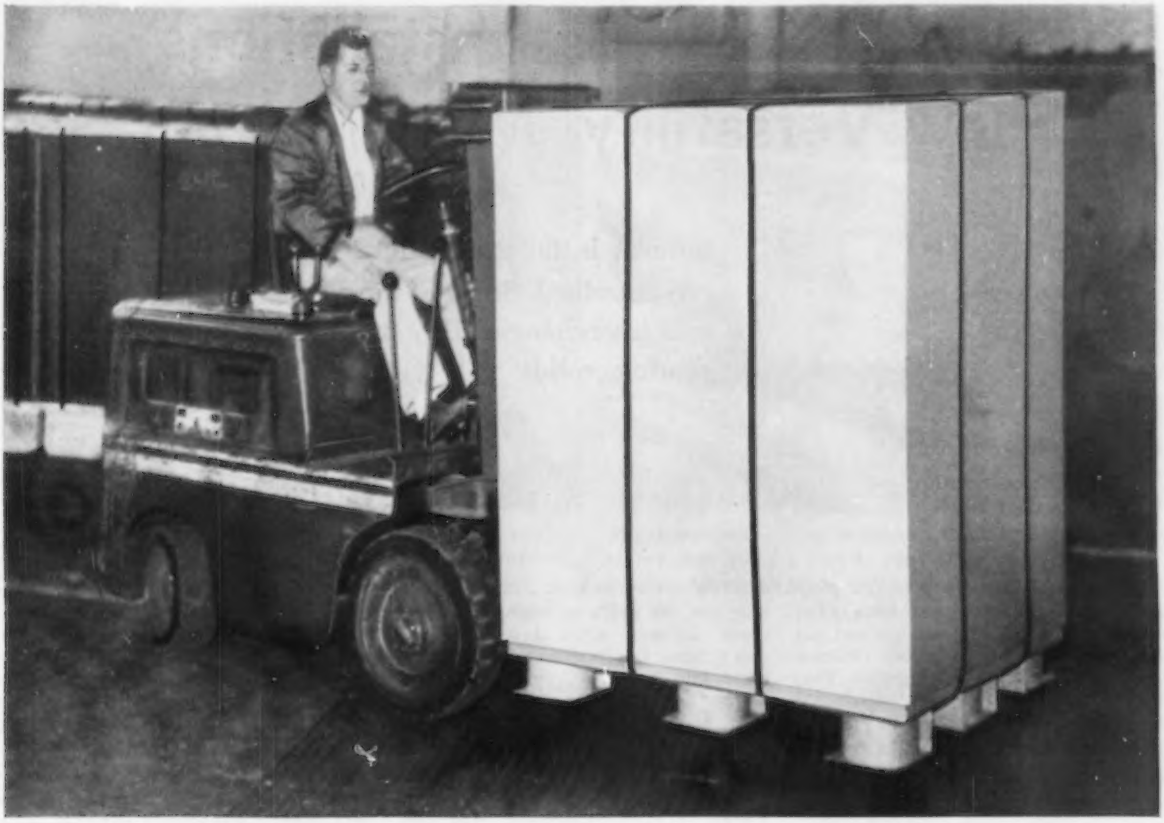
WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	July 21	July 21	July 21	July 21
No. 1 Mixed Paper	$5.00/ $7.00	5.00/ 7.00	4.00/ —	12.00/ —
No. 1 News	13.00/ 15.00	14.00/ —	14.00/ —	14.00/ —
Overissue News (Lg. size) ...	11.00/ 14.00	11.00/ 13.00	19.00/ —	18.00/ —
Mill Wrappers	10.00/ 13.00	10.00/ 12.00	7.00/ —	13.00/ —
Old Corrugated Containers	26.00/ 27.00	25.50/ 26.00	19.00/ —	22.00/ —
Super Resorted Kraft Paper ..	30.00/ 35.00	35.00/ 40.00	35.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	30.00/ 35.00	35.00/ 37.50	37.50/ —	30.00/ —
(Semi-chem. medium)	40.00/ 45.00	37.50/ 45.00	40.00/ 45.00	30.00/ 35.00
New 100% Kraft Corr. Cuts ...	50.00/ 55.00	50.00/ 55.00	50.00/ —	45.00/ —
New Br. Kraft, Env. Cuts	65.00/ 70.00	70.00/ 75.00	50.00/ —	50.00/ 55.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	50.00/ —	55.00/ 60.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	65.00/ —	55.00/ 60.00
No. 1 Groundwood Shvs.	21.00/ 25.00	20.00/ 25.00	14.00/ —	30.00/ 35.00
White Newsblanks	42.50/ 50.00	42.50/ 50.00	35.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	60.00/ 65.00	55.00/ —	— / —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hi-Gl White Shvs.	85.00/ 95.00	95.00/105.00	85.00/ —	85.00/ 90.00
Hi-Gl White Env. Cuts	105.00/110.00	110.00/115.00	90.00/ —	100.00/110.00
Col Tab. Cards	50.00/ 55.00	55.00/ 60.00	47.50/ —	27.50/ —
Manila Tab. Cards	65.00/ 70.00	70.00/ 75.00	65.00/ —	65.00/ —
No. 1 Col. Ledger	28.00/ 30.00	30.00/ 35.00	40.00/ —	22.00/ —
White Ledger	42.50/ 50.00	45.00/ 50.00	52.50/ —	45.00/ —
Mixed Book & Mag.†	15.00/ 18.00	17.00/ 19.00	12.00/ —	— / —
No. 1 Books‡	19.00/ 23.00	20.00/ 22.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.



Completed pack, ready for shipment

Will you test the advantages of this new Signode Adjusta-Pak sheet stock unit load?

This new unit load has been under development for several years, with the objective of improving the conventional skid load in these ways:

...reducing the unit cost through savings in packing time and materials
...improving the protection for the load
...reducing the shipping cost through weight savings
...eliminating all the physical and paperwork details of skid handling and return

Tests and actual use indicate that the objectives have been pretty well reached. The tests were made in our packaging laboratory and on our test track. Successful use of the unit has already been made by several paper mills.

The pack rests on a Signode paperboard expendable pallet, with an 8-section Signode corrugated paper Adjusta-Pak as an overwrap. Hardboard liners are used inside the pallet and under the cap. Advantages recorded to date include almost complete elimination of shuffling and of damage to edges, no indentation of top or bottom sheets. Cost reductions come from using less material—no dressing of skid—from saving 10 to 12 minutes of wrapping and strapping time, and from elimination of the wood skid and top.

The pack is easy to use, even with sheet sizes as large as 72″ x 48″. The units are more than strong enough for 3-high stacking. It is suitable only for fork lift truck handling—except for the possibility of setting it on a skid for in-plant movement.

We cannot tell you, without tests under your specific conditions, whether this package is right for your product. But we would appreciate the opportunity to tell you more about it and to work with you to determine its suitability in your operation.

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Horizontal Size Press Installations Show Versatility, Many Advantages

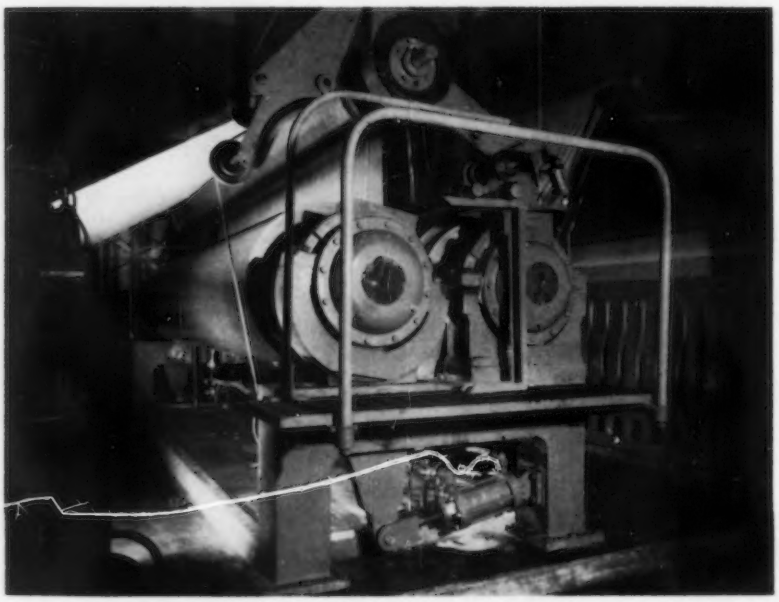
Several installations and aspects of their operation are described. Some of the advantages are cleanliness, roll interchangeability and the possibility of higher coating solids

Ernest F. Barker

Special Correspondent
Paper Trade Journal

The first known commercially practical horizontal size press installation used in any paper mill was created out of necessity at the Kingsport Division of the Mead Corp., in Kingsport, Tennessee. One of the conventional, vertical size presses in operation in this mill broke down one day. It was a conventional unit and when the frame broke the superintendent, "Red" Teter, took some old frames from a discarded four-roll machine coater and built up a horizontal size press which worked to a degree far beyond any expectations. It was as simple as this: a size press was urgently needed to keep a machine running and the mill's operating personnel made do with what they had. And that's how the horizontal size press came into being.

The next big step in the development of the horizontal size press came a short time later when Mason Hinkle, paper mill superintendent of the Chillicothe, Ohio, Division of Mead Corp., visited Mead's Kingsport Division. There he saw the same horizontal size press installation and after being told about some of the unusual results obtained, he decided to install one on the Number 6 machine in Mead's Chillicothe mill. Here, again, in Chillicothe, the next horizontal size press to be erected was built from existing framework. A number of old coating press frames were also used in this installation. Here is what Mr. Hinkle recalls about his first installation at Chillicothe and what he told *Paper Trade Journal:* "We gave the engineering division an idea of what was wanted and they came up with the plans plus a few of their own modifications. The result was a home-built horizontal size press which has proven itself to our complete satisfaction. This was in October of 1953 and since then we have also installed a horizontal size press on Number 10 machine. The rolls on the Number 6 installation were former coating rolls. The horizontal size press rolls on Number 10 machine had previously served as wet press rolls."



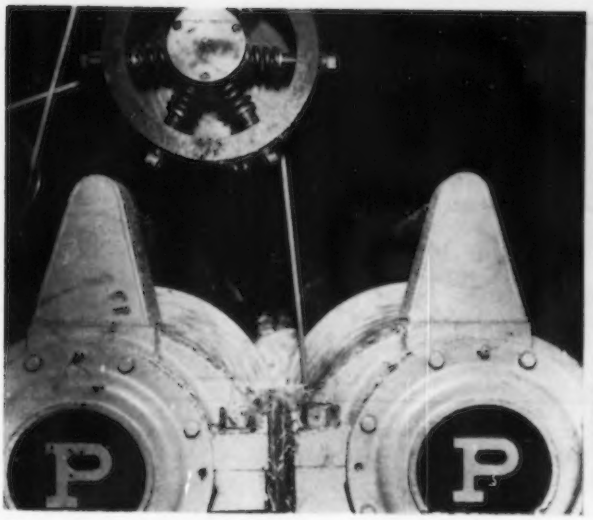
Horizontal size press recently put into operation at Chillicothe Paper Co. as part of new No. 4 machine.

Even prior to this latter installation, the suggestion was made to one of the largest paper machinery builders in the United States that a detailed horizontal size press design be created. Nothing came of this idea until about three and one-half years ago when the paper mill machinery division of the Patton Manufacturing Co. was established and became interested in the advantages of the horizontal size press.

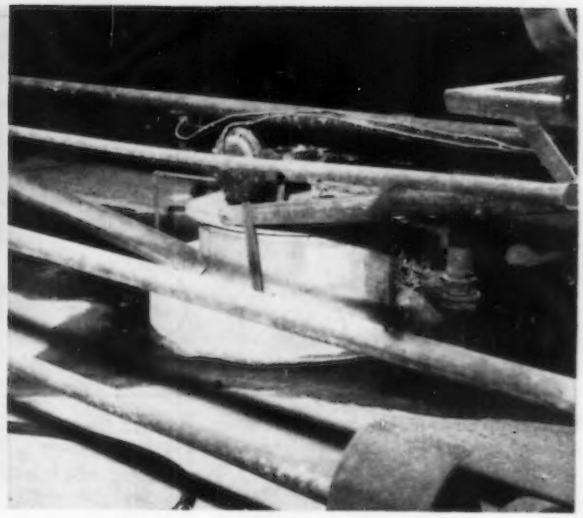
Since then, horizontal size presses have caused such interest in the industry, that *Paper Trade Journal* began to assemble available data on the horizontal size press last year for the preparation of this article.

Installations Now in Operation

Some of the horizontal size press installations now in operation include the following: Mead, one in Kingsport and two in Chillicothe; two at Fitch-



Close-up view of horizontal size press shows size pond, delivery pipes and typical size run-off. Runoff is screened to remove starch lumps, other foreign material.



Size return below press at Mead's Chillicothe Div. consists of two open metal chutes to the storage tank. Tank is small to assure quick size turnover.

burg Paper Co., Fitchburg, Mass.; one at the Oxford-Miami Division of Oxford Paper Co., West Carrollton, Ohio; and one at the Forest Products Division of the Olin-Mathieson Co. in Monroe, La. A horizontal size press is at present being readied by the Michigan Paper Co. Division of Hamilton Paper Co. Still another installation is being made for the Rex Paper Co., Kalamazoo, Mich., by Patton Manufacturing Co. A horizontal size press by Rice-Barton was just recently started up as a part of the new Number 4 paper machine at the Chillicothe Paper Co. in Chillicothe, Ohio.

Typical Specifications

Here are three typical horizontal size press installation specifications:

1—Chillicothe Paper Co.: Number 4 machine, Rice-Barton horizontal size press installed between the second and third dryer sections. The two size press rolls are similar, 32 in. diameter, 183 in. face. The second roll is covered with ½ in. thick Microrock and the first with 1 in. thick 20 P&J Plastometer rubber.

2—Nekoosa Edwards: Number 3 machine, equipped with a Beloit horizontal size press, used principally for printing grades. Nekoosa uses a paper receiving roll immediately ahead of a Mount Hope roll, driven at a slightly slower speed which, it is claimed, causes a slight draw which is found helpful in preventing wrinkling.

3—Oxford Miami Division: Patton horizontal size press on Number 1 machine. 162 in. roll face; 22 in. diameter. Existing rolls were used.

Controlling Amount of Sizing

In the horizontal size press the two roll center lines are in the same horizontal plane. The size is brought in through a single spout at the center of the press on each side of the sheet which runs vertically downward through a pool of size.

The amount of size applied is controlled principally by the depth of the pond and the degree of nip pressure with the latter factor exercising a much greater effect on size pick-up than the former. (A number of other factors obviously also affect size pick-up including formulation, temperature, roll density, etc.) The pond is usually kept just large enough to get even size distribution on the sheet with a little runoff at the ends of the rolls. Because of the nature of the horizontal size press design, in which the sheet travels vertically through the press, no pool of size lies on top of the sheet as in conventional size presses. This means that operation is safer at any speed because a common cause of breaks in conventional vertical size presses is sheet bagging which results in web breaks, under the weight of the pool of size in the press.

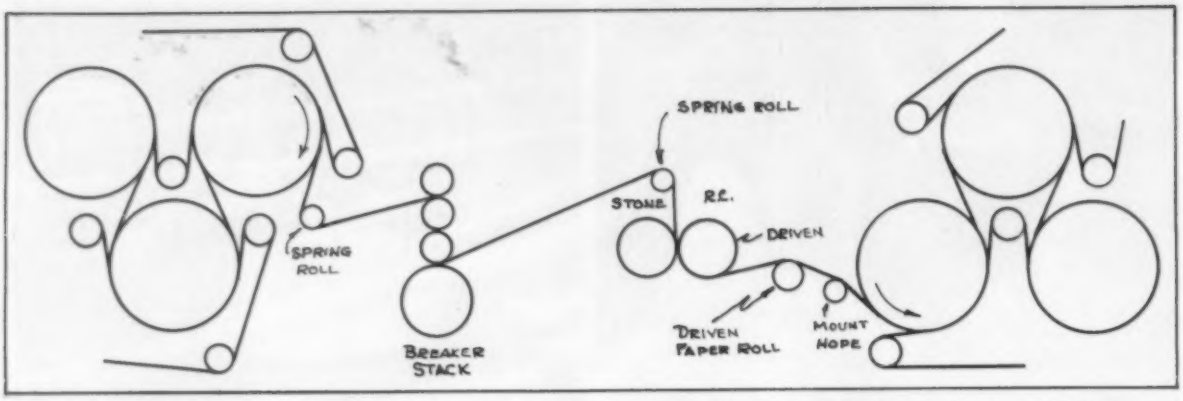
Worthy of consideration at this point is the fact that the amount of size applied in the horizontal press is not controlled nearly so much by the depth of the pond as it is by the degree of nip pressure. Mills which have recently converted from vertical to horizontal size presses have found that an educational process is required with regard to convincing their operating personnel that a deep pond is no. only unnecessary but even undesirable from a size economy standpoint.

Roll Interchangeability

The two horizontal size press rolls are usually interchangeable and the two rolls have identical face. The space required by a horizontal size press is almost the same as required by a conventional size press, inch per inch, which means that conventional size presses can be converted, as covered in a separate section of this article.

One typical and proven installation has one spring roll with a ¼ in. thick rubber cover, mounted on anti-friction bearings, which leads the sheet vertically into the nip. Coming out of the size press, the sheet is led over a Mount Hope expander roll and onto the first after-dryer. Experience has shown that as long a lead as possible between the press rolls and the expander roll is desirable. Thirty-six in. of lead is generally considered a minimum requirement with 42 in. much more desirable. Recommended also is having the lead after the Mount Hope roll between the tangent point of the Mount Hope and the tangent point of the dryer approximately one-third of the lead ahead of the Mount Hope roll.

As the size runs off the ends of the rolls it has the appearance of a liquid running over a V-notch Weir. This size runoff can be controlled quite critically and if the face length of the two rolls is identical there is no size "flinging" according to all reports received from horizontal size press installations. The down-spouts are not placed flush against



Typical horizontal size press installation. Rubber covered roll is crowned, hardness is 18-20 P & J. Stone roll is ground straight, material is Microrok. There are eight after dryers. Speeds—750 f.p.m.

the ends of the roll faces and there are no dams against the faces of the rolls. Once reasonably uniform size pickup has been established, the amount of runoff depends on the amount of size fed to the press by the delivery nozzles.

Roll interchangeability is recommended generally by Patton with the thought in mind that better sheet surface conditions can often be obtained when various rolls, equipped with different roll covering materials, are available. Under such circumstances the entire surface sizing process does of course become more versatile. Interchangeable rubber-covered and Microrock rolls are one example. With some grades and size formulations there are for example certain advantages in being able to switch from wrapping the hard roll to wrapping the rubber-covered roll, by being able to simply pick up the two rolls and interchanging them and then wrapping the other roll.

What About a Break?

One of the first questions usually asked by those unfamiliar with the horizontal size press, is concerned with "What happens when there is a break?" The horizontal size press is not equipped with a press pan, such a facility being unnecessary with the horizontal size press. When the sheet is not going through the press because of a web break before the press, the size is not shut off and the rolls are not separated, because without paper in the press, the size continues to run off the ends of the rolls as during normal operation. (This is even true when the press rolls are stopped temporarily as long as the rolls are together.) Herein lies the explanation to the doubt sometimes expressed by those unfamiliar with this equipment: the closed horizontal nip acts as a size pan in its own right with the size permitted through the nip only when it is carried by the sheet.

Mead Case Study

The Chillicothe Division of The Mead Corp. makes bond grades on its Number 6 paper machine. This machine was the first to be equipped with a horizontal size press in the Chillicothe Division. The paper made on this machine ranges between 12 and 20 pounds, 17 x 22 —500. This horizontal size press is used only for the application of conventional starch tub size. Starch solids content is approximately seven per cent. Pick-up is about ½ to ¾ of a pound depending on nip pressure and starch solids content.

Solids pick-up possible with horizontal size presses, according to reported Mead experience, lies in the same approximate range as pick-up made possible by vertical size presses because variables of the two presses do not change appreciably. Mead has experimentally run pigmented starches in its horizontal size press. From the limited data gathered from such experimental runs it is believed that there is probably not too much difference in pick-up between horizontal and vertical size presses when running pigmented starches. Despite these experimental findings, one point in favor of the horizontal size press is generally conceded: that it is less difficult to handle high solids pigment coating colors in the horizontal than in the vertical size press.

Mead has found that its two horizontal size presses at Chillicothe run very clean and that they are easier to thread. Mead has experienced considerably fewer press wraps with its horizontal size presses than with its vertical presses. The mill does not carry the draw into the horizontal presses as tightly as into the vertical presses because the sheet does not have to support a pond of size in the horizontal application. Maintenance, it has been found, is appreciably lower with the horizontal size presses.

In Mead's Number 6 machine horizontal size press installation, starch is made down in the starch plant and pumped to a machine storage tank, which is intentionally quite small to assure quick size turnover. Starch is supplied to the machines at 6½ to 7 per cent solids in a temperature range of 150° F. The machine supply tank has an open lid which permits cleaning from the machine room floor level, this with the advantage that the operator does not have to run downstairs into the basement whenever the tank requires attention. An extended tank valve stem through the operating floor permits easy tank draining from the operating level when the machine is shut down for washups. The tank is not equipped with heating facilities because desired starch temperatures are maintained as a result of quick turn-over. The size reaches the nip at temperatures ranging between 120° and 125° F. Level in the machine storage tank is controlled with an automatic constant level valve.

In this installation excess size runs off in two open metal chutes which convey the runoff at the ends of the size press to the machine storage tank. Runoff at the press is screened with a 40-mesh screen to remove any starch lumps, bits of paper or other foreign material. The return starch is also screened. (Here it was incidentally pointed out to *Paper Trade Journal* that especially fine screening in particularly important in the case of horizontal size presses because the size press pond is less protected from normal contamination than its vertical press counterpart due to its position.

The Mead Number 6 machine instal-

lation has two pumps. One small centrifugal pump handles starch normally and the other, a Moyno pump, is used as a standby unit in case pigmented size is used. The two pump units are piped in such a manner that in the event of failure of one, it is possible immediately to start the other.

A water shower extends over the entire length of the Monel covered roll in this installation. This shower is turned so that it deflects onto the rubber-covered roll. This arrangement makes it possible to size on one side only and also to wash the rubber covered roll effortlessly and to remove quickly a roll wrap which, Mead reports, is not often experienced on the horizontal size press. The size distributor pipe, which runs the entire length of the size press, has one outlet in the center.

Mead's rubber covered roll is crowned to .015 in. The Monel covered roll is straight. The nip pressure control is calibrated to read directly in pounds per lineal inch. On No. 6 machine the press is spring loaded on both sides and tied together with a cross shaft. The shaft is driven by a small motor, coupled to the shaft through a gear reducer and a spring loaded slip clutch. The rubber roll is stationary. Nip pressure is therefore controlled with the Monel roll only. Some slippage exists between the two rolls but this is so negligible that it cannot be measured. The rolls are all mounted in anti-friction bearings.

Mill Superintendent Mason Hinkle told *Paper Trade Journal:* "The secret of clean running (and controlling the size) is having the two roll faces identical. The Monel roll on Number 6 machine holds the carrier rope and enough friction exists between the rope and the roll to keep the roll turning when the web breaks. It is therefore not necessary to drive this roll." Mead's Number 10 machine installation, on the other hand, has a dual drive.

At Kingsport both horizontal size press rolls are driven but when Mead installed the press on its Number 6 machine at Chillicothe it switched to a single roll drive. The rubber-covered roll on this machine is covered with ! in. of 25 P&J plastometer rubber. Some proponents of the horizontal size press recommend that the second roll be similarly covered but Mead, using Monel, is quite satisfied with this arrangement.

Nip pressure is usually maintained at Mead around 40 to 50 pounds pressure per lineal inch of face, although the pressure does vary between 30 and 120 pounds depending on the grades being made. Originally the mill began its horizontal size press operation with .006 crown and 60 pounds nip pressure. Experience subsequently showed that loading pressure toward the center had to be increased to even out the width of the nip pattern. It was found that almost any practicable pressure desired can be obtained with these two horizontal press installations. In practice this means that the amount of size pick-up is controlled to a large extent with nip pressure.

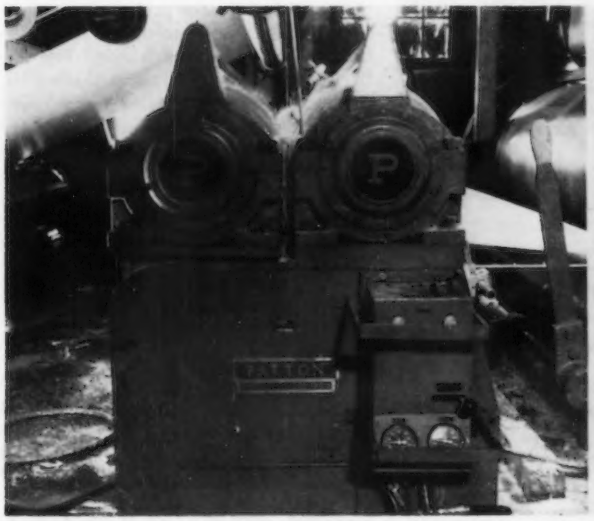
Mead must regrind the rubber covered rolls on its vertical size presses as often as every six weeks, but with horizontal size presses similar rolls have been run as long as five months before regrinding became finally necessary. This, the operators feel, is primarily due to the ease of threading and fewer instances of wrapping the sheet around the rolls. Consequently, there is less roll marking which in turn means less need for grinding.

Mr. Hinkle also told *Paper Trade Journal:* "The advantages of these horizontal size presses are quite outstanding, especially with high-speed machines, because there is no bagging due to size lying on the sheet. This means fewer breaks. Due to the construction of the press there is no rope contamination and this including the other features of the press, makes for a nice, clean operation, easy threading and easy changes, with a minimum of maintenance problems."

Roll Covering and Crowning

Amount of roll crowning in the horizontal size press has been a matter of much interest and discussion from the start. Patton crowns the rolls of its new horizontal size press installations based on the expected nip pressure, without regard to vertical normal deflection. While vertical deflection plus pressure deflection are factors which must be taken into account in vertical size presses, these are not considered vital factors with horizontal presses. In one typical 178 in. machine Patton installation one roll has a 25 to 30 P&J plastometer rubber cover and the other roll a ½ in. Stonehard cover. The rubber covered roll was installed with .020 in. of crown and the hard roll was crowned to .005 in.

Nip pressure on horizontal presses usually ranges between 75 and 125 pounds per inch. Rolls are often



Installation at Oxford Miami Div. on No. 1 machine was made last year. Rolls had formerly been in the machine's vertical size press.

Installation on No. 6 machine at Chillicothe Div. of Mead Corp. Constructed at the mill, it was the first horizontal press installed by Mead.

crowned equally. That this is however not a requisite of successful horizontal size press operation is again shown by the experience reported by Oxford Miami Division and still another mill where the rolls of former vertical size presses were utilized. Oxford Miami operates with .030 crown on one roll and no crown on the other. An eastern mill carries some crown on its old bottom rolls and some additional crown on the old top rolls. These crownings were not changed when the presses were converted and results have been satisfactory as far as reported.

Roll covering materials used in horizontal size presses are quite similar to those used in conventional size presses. These do of course depend somewhat on grades to be made.

A range of 20 to 30 P&J plastometer for the soft rolls is recommended for book, bond and ledger grades. Microrok, Rubrok and their equivalents have proven satisfactory for the hard rolls, but gunmetal, stainless steel and Monel have also been used. (The latter three are of course considerably more expensive.)

There is now a trend to recommend and use larger diameter rolls than have been used in the past. For example, Patton recommends 18 in. diameter rolls up to about 100 in. face, particularly for machines which operate at slower speeds, below 500 feet per minute. For 120 in. face, diameters of 20 in. are recommended, to be increased again to 22 in. for 150 in. face rolls. In the 160 in. to 180 in. face range, machine speed must be considered more critically with recommended diameters ranging between 22 in. and 26 in.; with anything above 180 in. face, machine builders now talk about 28 in., 30 in. and 32 in. rolls. One consideration at higher speeds (around 1600 f.p.m.) is the centrifugal effect of the rolls, above and beyond the deflection problem, in that there may be an increased tendency to fling size or to throw the sheet off the surface of the roll as it makes the wrap.

A top dryer as the last dryer ahead of the horizontal size press is strongly recommended. Machine builders experienced with horizontal size presses also recommend a bottom dryer as the first dryer after the size press.

There is a tendency at this time for mills to go to Teflon coated dryers following the size press. Teflon coated Mount Hope rolls following the size press have also been investigated and are presently being used in a few installations.

The advantages of installing a bowed roll between the first and second dryer following the horizontal size press is now considered questionable. The only advantage of such an arrangement would be realized when extremely light weights are run. Conversely, definite advantages are recognized as a result of installing such a roll ahead of the press.

Problem of Wrinkles

The problem of wrinkles produced at the horizontal size press appears to be neither less nor greater than with the vertical presses. The ability of the roll following the nip to control wrinkles after the size press depends largely on its ability to control sheet tension. There is a direct, though generally unknown relationship between the two.

A perhaps significant contribution to the wrinkle question is the contention that as the sheet enters the press a large and very stiff roll is a necessity in the absence of a bowed roll because the least bit of deflection on such rolls will cause wrinkling. (On machines equipped with 8½ in. felt rolls, for example, 10 in. or perhaps even 12 in. diameter rolls are recommended.)

One mill plans to add a bowed roll over the press in its contemplated horizontal size press installation. It is expected that this roll will do much toward eliminating wrinkle problems on lightweight sheets. A bowed roll is not considered necessary on heavier grades, provided a large diameter roll is installed immediately above the nip.

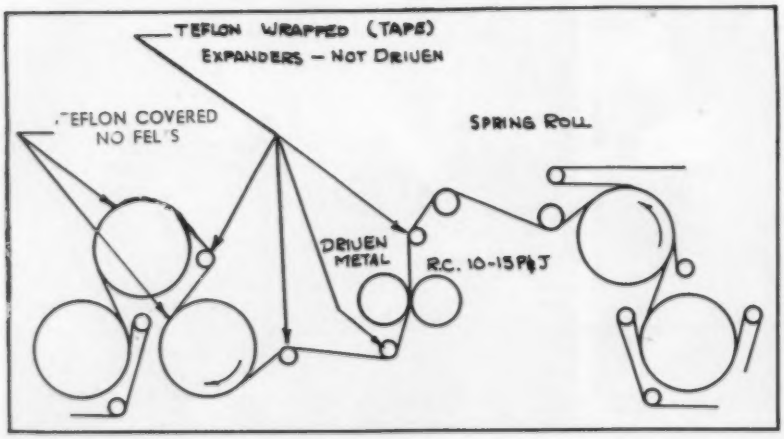
Removing the felt from the first after-dryer which follows the size press is recommended. This obviously not only prevents the dryer felt from becoming loaded with size but, most importantly, there is less wrinkling tendency, often accentuated when the first after-dryer felt tends to press wrinkles into the sheet. This recommendation is based on experience which has shown that wrinkles are smoothed by the first dryer if no felt is present. The installation of an oscillating doctor is recommended at the first after-dryer. At Mead in Chillicothe the first dryers following the size presses do not carry felts.

Roll Loading

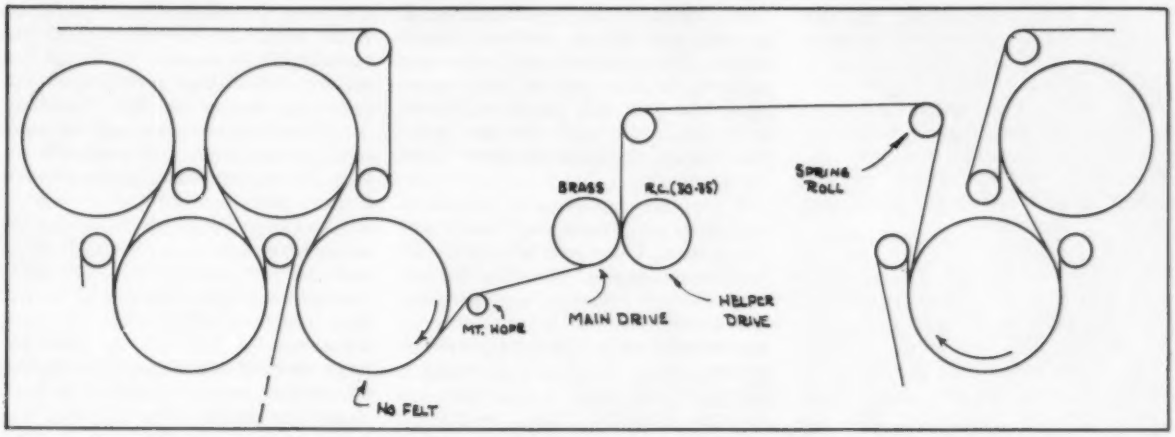
Recent new horizontal size press installations are designed for 150 pound maximum nip pressure. Four-inch, five-inch or six-inch hydraulic cylinders operate at about 500 p.s.i. and in Patton's design they are completely enclosed within the frame. The hydraulic power unit is usually designed for a maximum output of 1,000 p.s.i. and the cylinder itself usually has piston ring type pistons. Hydraulic loading appears to be greatly preferred in horizontal presses because of the much reduced need for maintenance. The entire question of hydraulic loading is, incidentally, an interesting one. There are quite a number of mills which have steadfastly stayed away from hydraulics but this trend seems to be in the process of being finally reversed as shown by the results obtained so far with hydraulically loaded horizontal size presses.

Practical Aspects of Operation

In most horizontal size press installations the size is introduced into the press at the nip center so that it can run from the center of the sheet toward both ends. Use of three nozzles is also made. Nekoosa Edwards Paper Co. uses three nozzles in its Beloit installation. This machine is 96 in. wide. The Mead Number 10 machine installation at Chillicothe uses only one nozzle in its 210 in. wide horizontal



Typical horizontal size press installation. Rubber covered roll is crowned, hardness is 10-15 P & J. Driven roll is straight. Speeds—350 f.p.m. There are six after dryers, no felt dryers.



Typical horizontal size press installation. Rubber covered roll is crowned, hardness is 30-35 P & J. Brass roll is ground straight. Speeds—1000 to 1500 f.p.m. There are 12 after dryers, no felt dryers.

size press. From this it appears that the matter of how many feed nozzles to use is so far by no means a standardized practice.

It is generally known that horizontal size presses are now used for the application of high solids and pigmented coatings. However, little specific information of horizontal size presses being used for coating applications is available because the paper industry is still quite reserved and "tight-lipped" when it comes to talking about coating and coating methods.

Common knowledge however is that the so far limited number of installations of horizontal size presses have already proven beyond much doubt that this type of size press permits higher solids than are normally practical with conventional vertical size presses. For example, one known operation utilizes a formulation of solids as high as 35 per cent with pickup as high as 5½ to 6 pounds per side, it has been reported. Pick-ups of 3½ pounds per side are not uncommon and based on statements made by informed mill personnel, it is apparently not impractical to think of pickups as high as 7 to 8 pounds per side.

One Sided Sizing

In general, interest in the horizontal size press in the paper industry has been keen, the method of using it to apply size to one side of the sheet has been no less keen. One-sided sizing is accomplished with one of the two methods presently in use. One is to run an extremely small quantity of water on one side and size on the other side of the sheet as the web moves vertically down into the nip. The disadvantage of this method is that even such a small amount of water applied does cause at least some dilution of the size. One mill which uses this method does not find it objectionable. Another mill found this method of one-sided sizing unacceptable and therefore came up with the alternate idea of using a fine mist spray shower which serves to keep one of the rolls moist. (It is of course important that the roll on the non-sizing side be kept moist because when two rolls, one of them a rubber covered roll, press together, considerable roll covering deformation results. This produces heat build-up which causes roll wear. Such wear can be avoided by keeping the roll in question properly lubricated with water.)

Heavy Sheets No Problem

When the horizontal size press was first introduced one of the biggest items of conjecture in the industry was how the size runs off the ends of the horizontal rolls. This has already been explained as a "V-notch, weir-like runoff." One additional point is however of interest. It is conceivable that high bulk sheets could permit the size to run down between the edge of the sheet and the end of the rolls. This is theoretically possible because the equal roll faces in this press are longer than the width of the sheet; the sheet does not reach out to the end of the rolls. With a high bulk sheet there consequently exists the possibility that the rolls may not touch in the areas between the ends of the sheet and the ends of the rolls. This matter is touched on here because we have heard this questioned occasionally in "horizontal size press discussions." Further inquiry into this matter has revealed that this question is a minor one. It is now generally felt that the rolls do invariably touch at the ends regardless of sheet bulk. The only possible exception could be the unfortunate combination of a very high bulk sheet and extremely hard rolls. This can in turn be rectified by changing the nature of the roll covering material. (This matter is treated here principally because it may be of concern to mills giving the horizontal size press consideration for board machines.) Patton engineers told *Paper Trade Journal* that heavy paper grade sheets are now being run through the horizontal size press and that no problems of this nature have been reported.

Paper Run Through Press

A considerable degree of interest also exists among horizontal size press proponents about how the sheet should be carried through the press. Such questions as whether one roll should be wrapped, how much it should be wrapped and which of the two rolls should be wrapped, have caused many discussions among papermakers since the horizontal size press appeared on the papermaking scene. Various approaches are possible and have been proven workable. One installation uses a minimum amount of wrap around its driven metal roll. An expander roll below the press is part of this installation. On the Number 10 machine at Mead in Chillicothe, there is a considerable degree of wrap around the driven brass roll with an expander roll immediately before the first after-dryer. A similar system is found at Nekoosa Edwards with the exception that a driven paper roll supports the web between the point from where it emerges from the press and where it is picked up by the expander roll immediately before the first dryer. At Oxford Miami the rolls, being interchangeable, are often switched so that the sheet wraps either roll. Here an expander roll is installed just before the first dryer. A still different situation exists on the Number 6 Mead ma-

chine in Chillicothe, where the sheet does not wrap the driven roll, but rather the metal swing roll. Here too an expander roll is used before the first after-dryer. Basing their opinion on results obtained with these typical installations, experienced operators now feel that there is no real mechanical operating advantage of wrapping one roll in preference to the other.

Patton engineers who have by now a considerable amount of experience with horizontal size presses, recommend that the sheet be brought around one of the press rolls with about 75 degree wrap. This means that the sheet will leave the press roll with about 15 degrees below the horizontal. They further recommend that the sheet be then led over an expander roll placed ahead of the first dryer. Most installations, they point out, do however wrap either the driven or the swing roll with almost 90 degrees which means that the sheet leaves the roll almost horizontally.

With regard to roll-wrapping there is one point on which everyone agrees: the sheet must not leave the nip exactly vertical lest it will "flit," i.e. alternately adhere to one roll and then the other and thus move back and forth just as it leaves the nip. A minimum roll wrap of three to five degrees is therefore an absolute requirement. The advantages of wrapping one of the rolls more than this are however obvious because one less carrying roll will be required as a result. Nevertheless, the rheological characteristics of the material used in the size press do in the final analysis determine whether to use an extra carrying roll or not. Rheology will also usually determine which roll to wrap. Generally, the smooth surface roll should be wrapped because less patterning (shape drags) will result.

Nekoosa Edwards uses two rolls following the size press. The first one is a driven paper roll to create a somewhat slack draw between it and the press. This reportedly serves to avoid or at least decrease wrinkling. The slack is obtained by running this roll slightly slower than the sheet. This arrangement in turn permits a tight draw over the expander roll which follows the driven paper roll. The end result is a slack-draw first to avoid wrinkles followed immediately by tight draw for proper spreading. The other known horizontal size press installations use Mount Hope rolls between the press and the after-dryers only.

One potential difficulty connected with installing any kind of roll immediately after the size press is the problem of size pick-up. One of the mill's solutions for this is a steam shower, directed at the surface of the expander roll. This has in one known installation reduced size pick-up problems considerably. The mill with this installation cautions however that it is of course quite important that the steam shower be so designed that it does not "spit," lest it mark the sized or coated sheet surface.

There also appears to be a trend to use higher nip pressures with horizontal size presses. The reason for this is quite likely psychological, caused by the fact that machine operators now suddenly find themselves able to control press nip pressure with the horizontal size presses. With these new installations operators now have to load their roll whereas formerly, with conventional size presses, they "just left the roll sit on top and let it go at that." Specific data pertaining to the amount of nip pressures now commonly used and effects on various sheets is not yet available principally because these factors yet remain to be studied thoroughly.

Oxford Miami Case Study

Oxford Miami Division of the Oxford Paper Co., at West Carrollton, Ohio, installed a horizontal size press on its Number 1 paper machine late last year. This is a Patton installation, with 162 in. roll face. Roll diameter is 22 in. The mill used rolls which had formerly been in the machine's vertical size press.

Because the mill has a dual set of rolls (available because the former vertical press of this machine had a set of spare rolls), Oxford Miami has been able to experiment with roll interchangeability. For quite some time there has been keen interest with regard to the horizontal size press about the possibility of using two rolls of the same covering material. Accordingly, Oxford Miami has operated its horizontal size press with its two rubber covered rolls of equal 15-20 P&J plastometer and also its two hard rolls, one brass and the other Microrok. The two brass rolls have a crown of .030 and the two rubber covered rolls are straight. For normal operation the mill uses one rubber covered and one brass roll with the brass roll usually in the swing roll position.

One of the disadvantages of using two rubber-covered rolls is that in this case a soft roll is driven which makes for possible wide variation in drive-draw control. (This incidentally is one reason why horizontal size press operators generally appear to prefer to drive the hard roll because this makes for less drive-draw control problems.)

This horizontal size press installation includes a guide roll, which is crowned ⅛ in. and which leads the sheet into the press. A Mount Hope roll is installed before the first after-dryer. Nip pressure is held around 75 although this pressure ran as high as 120 when this press was first placed into operation. This installation is also used for one-sided surface application work. In this case the rolls are water lubricated with a spray mist.

Wrinkling and splash from the nip are some problems encountered. However, the mill feels that these are minor problems and that there will be no difficulty in overcoming them as more experience is gained. A somewhat larger pond of size is carried by Oxford Miami than is found usually with horizontal size presses. The mill feels that better surface sizing material coverage is obtained by using this larger pond.

The mill's satisfaction with this equipment was summarized for *Paper Trade Journal* by Charles H. Claypool, mill manager: "The horizontal size press is a clean and neat installation and we have found it to be more versatile than the vertical press."

Advantages of Horizontal Press

Some of the advantages of the horizontal size press are quite obvious and some are not. By the same token, some of the advantages offered to some mills by the horizontal size press are not of equal importance as those realized by other mills. The advantage probably most welcomed by all mills is the fact that this equipment is, without a doubt, the cleanest type of size press ever placed into a paper machine. The reasons are quite obvious. There are no press pans but merely two small downspouts, one at each end of the size press. Cleanliness is furthered considerably by the fact that the size does not run down over the face of the rolls. This means that the size does not touch the journals, and that it consequently does not have the opportunity to get into the bearing housings.

Experience does not dictate a maximum quantity of size which needs to be carried in the press while the minimum is simply established by the amount of size required to cover the entire width of the web. Pond depth on each side of the sheet will vary slightly from the center to the edges because of the formation of a slight hydraulic radius.

Two obvious advantages of the horizontal size press are the ease of roll changing and roll interchangeability and ease of by-passing the press entirely when the sheet does not call for surface sizing or coating. Another advantage is the fact that there is no sheet "bagging," which is considered a serious problem on lighter weights at

any speeds and even with some heavier grades at higher speeds.

One of the advantages of the horizontal size press not quite so obvious is the fact that the carrier ropes passing through the size press remains free of size and that this is accomplished in spite of the fact that there are no shields around the rope going past the nip. Carrier ropes in the horizontal size press are usually carried past the nip on pilot sheaves and they are thus kept clear of the run-off stream which emits at the end of the rolls. The sheaves also eliminate the necessity for a separate rope stretcher and separate rope transfer because the ropes can continue directly into the after-dryer section with such an arrangement.

The almost unlimited possibilities reputedly offered by this equipment have caused the greatest amount of interest in the industry. One of these "possibilities" is the higher coating solids formulations possible with this press. The open size delivery pipe used in horizontal size presses results generally in fewer of the common starch drying difficulties often experienced with its vertical counterpart. Delivery pipe orifice clogging and hardened starch particle drop-off from the shower pipe in the vertical size press, are absent in the horizontal size press.

In the horizontal size press, there is an even and equal distribution of the size on both sides of the sheet. If the size or coating material used happens to be thixotropic (as many of the higher solids pigmented sizes are) the same apparent viscosity of the pigmented coating as it is applied to both sides of the sheet results since the shear is the same on each side. Because this is not true in a conventional size press, a wide range of apparent viscosities as the pigmented size comes into contact with the web is often found in vertical presses. It is therefore logical to assume that the problem of selective pick-up on the size press is greatly reduced or even alleviated in the horizontal size press.

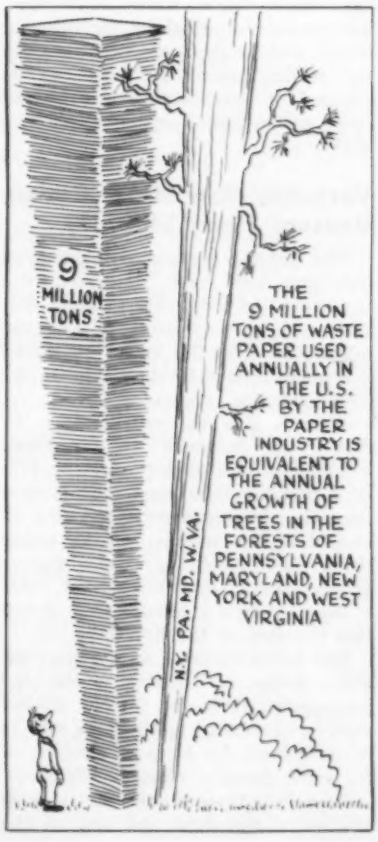
The life expectancy of horizontal size press roll-covering materials is reported greater because the rolls in these new size presses are being generally carried with less crown. The absence of doctors in the horizontal size press also increases the life of the roll-covering material. (Roll covers used in the horizontal size press can be, and often are, identical with those used in conventional size presses.)

Two-Sided Color Control

One particularly interesting, application demonstrates the versatility of the horizontal size press. In this case a horizontal press is being used for two-sided color control. This is accomplished by running the dye-color on one side of the sheet at normal pond depth while running conventional white size at a lesser pond depth, on the other side. A minimum amount of regular uncolored size is mixed with the dye material at the ends of the rolls where the two streams converge. This diluted size is returned to a small color blending tank where it is automatically brought up to the desired dye intensity standard.

Converting Vertical to Horizontal

Since news of the horizontal size press has spread through the industry, quite a number of paper mills have given consideration to the possibility of converting their present conventional vertical size presses to the new horizontal type. The question of whether it is possible to convert and what is involved, is therefore, a timely one. Cost of such a change-over is considerably less than many mills seem to anticipate, according to Patton engineers. Costs of such conversions can be kept especially low if the vertical size presses to be converted are equipped with anti-friction bearing rolls. Such vertical size press rolls can and have been used in rebuilds. Of interest here is also the fact that even where anti-friction bearing rolls are not available, it is entirely possible to use such rolls. In some cases very minor re-machining and adding completely new anti-friction bearings is possible. At worst, rejournaling the rolls is also possible, which is still considerably cheaper than purchasing new rolls.


9 MILLION TONS
N.Y. PA. MD. W.VA.
THE 9 MILLION TONS OF WASTE PAPER USED ANNUALLY IN THE U.S. BY THE PAPER INDUSTRY IS EQUIVALENT TO THE ANNUAL GROWTH OF TREES IN THE FORESTS OF PENNSYLVANIA, MARYLAND, NEW YORK AND WEST VIRGINIA

Mills desiring to convert their vertical size presses to the horizontal type will as a rule find little difficuly with space requirements because a horizontal size press requires almost the same amount of space, inch for inch, as its vertical counterpart. Moreover, it is frequently not necessary even to reset the drive of the existing vertical size press because the existing bottom driven roll may be left in its present position. In this case the existing top roll may be swung through an arc of 90 degrees to create the horizontal application.

Installing a horizontal size press where no press existed formerly is, however, another matter. In most cases, removal of four dryers is recommended. It has been found generally impractical, although in some cases possible, to crowd a horizontal size press into less space.

Where there is not sufficient space to install a conventionally located size press, the possibility of installing a press in the machine room basement may prove to have interesting possibilities. Champion Paper and Fibre Co. in Hamilton, Ohio is, for example, known to have three basement size press installations. It is entirely possible to install a size press in the basement without removing a single dryer, although such an arrangement could not be called an "optimum condition." One midwestern machine modernization program presently includes proposed plans to install a horizontal size press in the basement which will use existing dryers on the machine room floor as after-dryers by having the sheet drop through the basement ceiling, pass through the press and then again to emerge upstairs into the dryer section.

Rolls used in conventional vertical size presses are frequently uneven in length. The top roll often has about one inch of longer face than the one used as the bottom roll. When converting from vertical to horizontal it is imperative that the face of both rolls be exactly the same. If they are not identical in length the size will spill onto the floor, the frames and adjacent framing. If the roll faces are the same length, the size will run out of the nip in a controlled manner to be collected by the stainless steel down-spout which is part of all horizontal size press installations.

Self-Loading Truck Speeds Materials Handling

Detachable containers, up to and over 40 cubic yards capacity, are employed in a new system of materials handling just developed by Dempster Brothers of Knoxville, Tenn. The firm has applied for patents on the new invention which is called the Dempster-Dinosaur.

Basic advantages of the new system are: larger capacity containers, better weight distribution; legal load limits up to 30,000 pounds; unlimited off-the-road capacities; complete hydraulic operation without use of winches, sheaves, telescopic cylinders, cables or chains, all pick-up and handling operations performed without the driver leaving the truck cab; and ability to put containers on and off docks.

Mechanically, the Dempster-Dinosaur is of extremely simple design. Components are a tilting frame, two hydraulic raising and lowering cylinders and a double-acting bail cylinder, which pulls the containers up the tilting frame with a ratcheting action against recessed hooks spaced at intervals under the container.

Two models are now available for over-the-road use— one handles 22,000 pounds and the other 30,000 pounds. Maximum height and length of container is limited only by state regulations. Off-the-road models will be available with hoisting capacities limited only by the load capacity of the truck.

Suggested uses for the Dempster-Dinosaur in the paper industry are for handling large accumulations of waste materials such as bark, slaker lime grits, ashes, core butts, general rubbish and salvable scrap. However, Dempster Brothers is in the process of developing big-capacity, stake-type containers for handling logs; enclosed, water-tight, tank-type containers for handling chemicals, liquid wastes, slurry and sludge; and cargo-type containers for raw materials and finished product handling. At its destination, the load can be dumped or the container can be put down on the ground or pushed off on a dock.

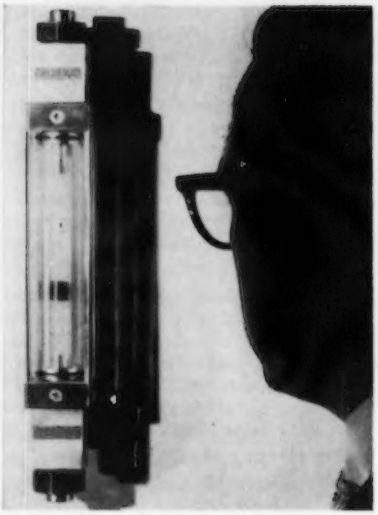
Versatile Flow Meter Claims Unusual Float Stability

The general purpose, variable area industrial flow meter illustrated here is reported to accurately measure flow rates with new standards of float stability. Known as the Series 500 meter, it is manufactured by the C-Mar Corp., 35 Euclid Ave., Manasquan, N. J.

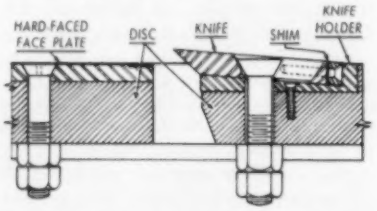
Here is how the meter works. As flow rate increases or decreases, a superfine-finished float rises or falls in a precision-bore glass tube proportionately exposing more or less of a V-shaped orifice. Because of the orifice shape, float height is always directly proportional to flow rate. Flow value is indicated on a graduated scale etched into the side of the flow tube.

Due to the inherent simplicity of the meter design, maintenance is easy and inexpensive. Only the bottom adapter need be unscrewed to allow the tube to be pulled out for periodic cleaning or for meter capacity change.

Capacity depends on the specific gravity of the fluid, the size of the flow tube, and the float weight. Standard meters range from 0.0001 gpm to 30 gpm of water (0.0002 to 90 scfm air). For other capacities and fluids, interchangeable floats of various materials are supplied.



Meter working pressures vary with meter size. Rating for ¼ inch meter is 250 psi at 70 degrees Fahrenheit. For pressure up to 1000 psi, a stainless steel jacket is furnished with top-mounted magnetic readout. This readout feature is also used with dark liquids. End fittings, in standard sizes from ⅛ to 1½ inches, permit either horizontal or vertical pipe connections.



Improved Knife Assembly for Slab Chipper

A new knife assembly, wherein the knives are mounted in knife holders, has been announced by the Carthage Machine Company for its 47 inch Slab Chipper. The new assembly is said to offer many advantages over the previous design. For example, to change chip length, all that is necessary is to change the knife holders. There are no field adjustments, which eliminates guesswork. The knives can now be shimmed in the shop and are therefore the correct width when placed in the disc, eliminating field shimming. Simplicity of design results in lower knife cost and fewer knife-assembly parts. Replaceable hard-faced wear plates, firmly bolted to the disc, result in further economies in the operation of the Carthage 57 inch chipper.

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU

Nopcosant, Formerly Nopco 1287, an Improved and Economical Pitch-Dispersing Agent

Nopcosant was formulated primarily to control pitch troubles in mills using sulfite, semichemical or groundwood pulps. Its use results in longer runs, more uniform paper, improved felt performance, and lower costs—pitch does not deposit on equipment and therefore costly downtime for cleanups is greatly reduced.

Nopcosant is extremely useful, too, in the control of slime, as a size stabilizer, for coating fluidizing, and for improving pigment dispersion in beater stock.

You would find it profitable to have all the facts about Nopcosant. Write or call us today without feeling any obligation. Complete facts on Nopcosant will be sent you by the next mail. Nopco Chemical Company, Harrison, N.J.

ADVANTAGES OF NOPCOSANT

- A fine powder of minute, uniform particle size
- Dusts less than any other similar product
- Lightest colored product of its type
- One of the most rapidly dissolving products available
- The most nearly neutral *p*H in its chemical class

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You'll Get Longer Life, Better Performance With

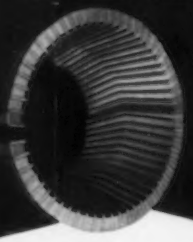
BLACK-CLAWSON X-66 JORDAN PLUGS

High strength, BlaCaloy (ductile iron) castings—precision machined. Special Mox 4 bands hold bars firmly in slots—with a full 1 inch side metal support both sides of bars—full length. Rotation of plug can be reversed for maximum jordan efficiency.

Fillings available in all materials. Full length beads on each side of bars prevent spacers from rising.

Super-Rigid

BULLDOG SHELL FILLINGS



Write for Bulletin 22

The original pre-assembled filling—for all makes of jordans.

Assembled in special jigs for rigidity and perfect symmetry. Every bar and spacer keyed with heavy bands and reinforced for maximum strength.

Shipped to You in a Strong Fibre Container

Lighter, easier and safer to handle. Fillings stay clean and dry. Facilitates storage and inventory checks.

Available only from:

THE BLACK-CLAWSON COMPANY

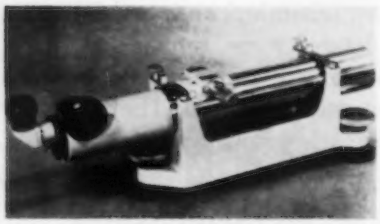
SHARTLE DIVISION

MIDDLETOWN, OHIO

Liquid Agitation Device for Laboratory Applications

A newly designed rotary liquid agitation laboratory apparatus is being produced by New Brunswick Scientific Co., Somerset Street, New Brunswick, N. J.

Operating-electrically, this unit (Model ST Spinnerette) eliminates need for manual shaking of test tubes or small vessels. It combines the versatility of four rotating speeds with the advantage of a changing tilt angle of platform to provide optimum variation in rate of mixing or agitation. Precision-built and compact in appearance, Model ST affords smooth, quiet and maintenance-free operation over sustained periods of time.



Precision Instrument Checks Straightness and Alignment

Truly straight optical reference lines between distant points can now be established using the Reflect-Align Telescope manufactured by the F. T. Griswold Mfg. Co. of Wayne, Pa. The telescope not only measures errors in angle and defects in parallelism, but also directly measures linear errors in flatness, alignment, and concentricity in .00005" values. Precision of 0.0001" is obtainable in measurements up to 6½ ft. . . . of 0.001" up to 66 ft. This high degree of accuracy is due to the unique design of the telescope which clearly shows errors because they are doubled in size when read.

The instrument consists of two parts: the 17 inch telescope and an 8 inch reflector. For linear measurements, the instruments are attached to the set-up being measured. The telescope remains fixed, while the reflector moves along the line of inspection. Discrepancies are measured between the optical center of the reflector in reference to the optical line of reference as defined by the telescope. The limit of the measuring range is ± .040".

Angular measurements require the addition of a divergent type lens to the telescope. Graduations that represent .00005" for linear measurement, now must be read as .25 second increments. Measurement precision is obtainable to within a quarter of one second with a range of three feet.

New In-Line Helical Gear Drives

Link-Belt Company now offers industry a quadruple reduction helical gear drive and new larger sizes of double and triple reduction drives to augment its present line of double and triple reduction In-Line helical gear drives. Drives with capacities to more than 200 h.p. are available.

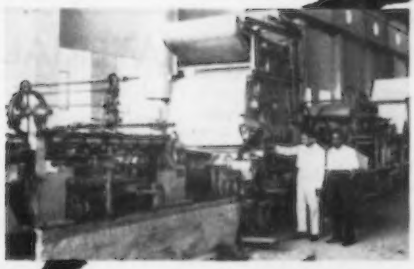
The extremely compact quadruple reduction speed reducer, available in five sizes, extends the range of ratios as high as 2,217:1. The simple gear arrangement of these speed reducers consists of helical gear trains operating in high capacity ball and roller bearings mounted in a cast iron housing.

Space requirements and layout problems are minimized by locating input and output shafts in the same horizontal and vertical planes. Automatic splash lubrication of all moving parts assures dependable lubrication and dependable operation at all speeds.

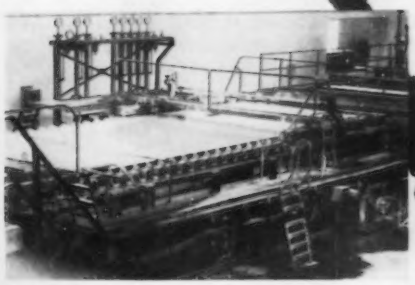
Synduction Motor

Solving unusual and difficult job application problems is a specialty of the Synduction motor, a product of Allis-Chalmers, Milwaukee, Wis.

The Synduction motor is basically a synchronous induction motor developed for general industrial use. Available in ratings from ¼ to 40 h.p., the motor requires no brushes, slip rings or windings on the rotor, separate source of direct current excitation, or special starting equipment as is the case with standard synchronous motors. Standard across-the-line starting equipment, except in the very largest ratings where reduced voltage starters are required, can be employed. Having a high (175 to 200 per cent) pull-out torque, the motor remains in synchronism regardless of load or line voltage fluctuations.

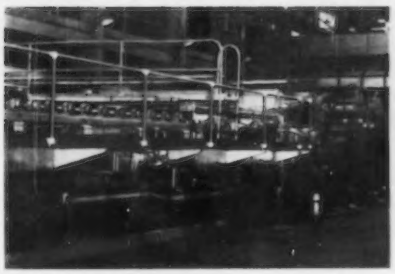


DEHRA DUN, INDIA



Sandy Hill papermakers excel in construction ideal for each purpose, performance *beyond* that guaranteed--and service that assures uninterrupted operation.

FOLEY, FLA., U.S.A.



Die Sandy Hill Papierfabrikanten sind hervorragend in der Konstruktion welche jedem Zwecke am Besten entspricht; die Leistung übertrifft jene welche man gewährleistet hat--und die Bedienung besorgt ununterbrochenen Arbeitsgang.

GRAZ, AUSTRIA

TAEJON, KOREA

Los papeleros de Sandy Hill sobresalen en una construcción que es ideal para cada propósito, un funcionamiento que es *superior* a lo garantizada -- y un servicio que asegura la operación sin paradas imprevistas.

MONTEVIDEO, URUGUAY

papermakers for the world

That's a pretty good description of Sandy Hill pulp and paper mill machinery as well as of the men in many lands who operate it. They make paper for all the world . . . *profitably*.

And that's why, in the language of every papermaking country, you'll hear enthusiastic agreement on the quality of Sandy Hill design, workmanship and service.

THE

SANDY HILL

IRON AND BRASS WORKS

HUDSON FALLS, N. Y.

OBITUARIES

S. F. Talbert, 62, president of Continental Box Co., Houston, Texas, and director of the General Box Co. of Des Plaines, Ill., died July 8.

Douglas Putnam, 97, died at his home in Pasadena, Calif., June 31. An organizer and director of Waldorf Paper Products Co., Putnam retired at the age of 70 and later moved to California.

Francis Adams Day, 80, died July 6. An employee of the U. S. Envelope Co., Springfield, Mass., for more than 50 years, he was manager of the Morgan Stationery Division for many years and later was with the Kellogg Division, retiring in 1952.

Rufus I. Worrell, 69, former chairman of the board of The Mead Sales Co. and director of the forest products division of the Office of Price Stabilizaton, died July 10 at his residence in Lyme, Conn.

THE WIGGINS TEAPE GROUP

Founded in 1761

The Gateway Range of Fine Papers produced by the Wiggins Teape Group each bear a Gateway in the watermark. The Gateway is recognised throughout the world as a guarantee of quality and fine papermaking. Wiggins Teape are proud of the reputation which they have built up during nearly 200 years of papermaking, originally in the field of watermarked papers and later in addition developing specialized papers. The range of papers now made by the 52 papermaking machines in the Group include The Gateway Range of watermarked papers, Index Boards, Tag Board, Printing and Drawing Cartridges, Brush Coated Art Papers and Chromos, Banks and Bonds, Duplicators, Cream Woves and Laids, Gateway Natural Tracing, Dyeline Base, Cheque and Security papers, N.C.R. (no carbon required), Glazed Imitation Parchment, Genuine Vegetable Parchment, Glassine, M.G. Sulphites, Pure and Imitation Kraft, and base papers for the photographic, plastic laminate, filter and abrasive trades.

The most famous watermark in the Gateway Range

THE WIGGINS TEAPE GROUP • GATEWAY HOUSE
I WATLING STREET • LONDON EC4 • ENGLAND

PRICES OF MATERIALS

Aluminum sulphate:
coml. bulk, c.l. wks. ....cwt. $2.00 / —
iron-free, c.l. wks. .....cwt. 3.55 / —

Casein, acid prec.:
dom. sh. pt. c.l. (30 mesh) cwt. 56.00 /
Arg. ex dock .....cwt. 18.75 /19.25
New Zealand .....cwt. 23.50 /24.00

Caustic soda:
c.l. wks. solid, 76% .....cwt. 4.80 / —
flak. & grd. drums, c.l....cwt. 5.20 / —
liquid 50% tanks.... 2.90 / —
liquid 73% tanks.... 3.00 / —

China Clay
dom., dry-grd., airfloat:
325 mesh bgs., c.l. Geo. ton 10.00 /12.00
300 mesh, bgs., c.l. Geo. ton 13.50 /14.50
imp., white, lump, c.l. ex. dock 20.00 /35.00

Chlorine:
single-unit tanks, works ..cwt. 3.15 / —
multiple unit, 2-5 cars per yr. 5.75 / 4.05

Lime:
hydrated, bulk, c.l. N.Y. ..ton 23.55 / —
quicklime, bulk, c.l. N.Y. ton 20.55 / —

Gum rosin:
K. M, N, drums, c.l. Savan, cwt. 7.75 / 7.85

Rosin size:
70%, gum & pale paste, tank
cars, south, sh. pt. .....cwt. 7.51 / —

Saltcake:
dom. bulk, 100% anh. wks. ton 28.00 / —

Soda ash:
light, 58% ash bags, wks. cwt. 1.85 / —
bulk, c.l. wks. .....cwt. 1.55 / —

Sodium chlorate:
drums, c.l., wks. ..... cwt. 9.00 / —
drums, l.c.l., wks. ..... cwt. 9.50 /10.50

Sodium peroxide:
dms., c.l. E. of Miss ..... lb. .20½/ —
l.c.l. (same basis) ..... .21 / .21½

Sodium silicate, 40° Be.:
tank-cars, wks. .....cwt. 1.20 / —
drums, c.l. wks. .....cwt. 1.55 / —
47° Be. WW.
tank-cars, c.l. wks. ..... cwt. 1.90 / —
drums, c.l. wks. .....cwt. 2.25 / —

Soybean, protein:
chem. isol., wks. c.l. bags ..lb. .19 / .23

Starches:
Corn, multiwalls, c.l. prod. plant:
pearl .....cwt. 6.49 / 6.75
white, dextrins ..... cwt. 8.08 / 8.20
chlorinated .....cwt. 8.25 / 8.35
potato, Idaho, c.l. wks. cwt. 6.35 / —
East, fr. all. 50 cents cwt.
potato, Maine, f.o.b. wks. cwt. 6.25 / —

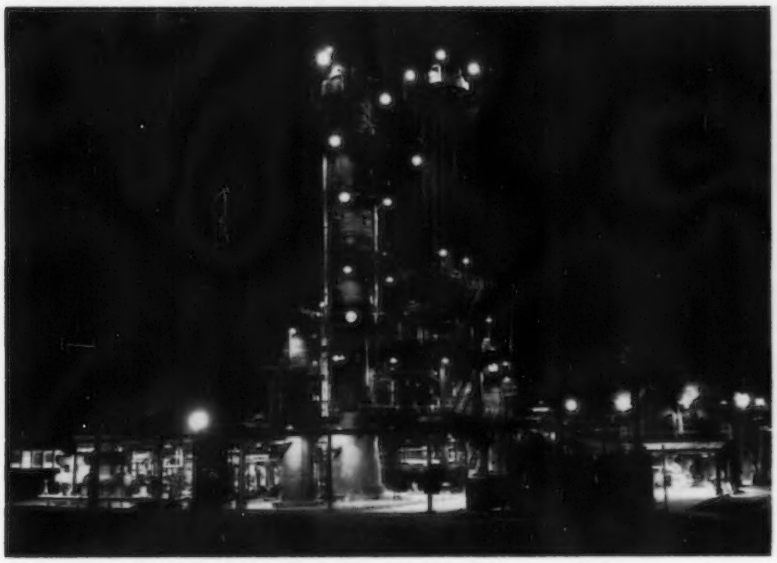
Sulphuric acid:
60° Be. cbys. c.l. wks. ..cwt. 2.00 / —
l.c.l. wks. .....cwt. 2.30 / —
tank-cars, wks. .....ton 18.60 / —

Sulphur:
crude, c.l. mines, contract,
long ton 23.50 / —
f.o.b. vessels Gulf dock ..ton 25.00 / —

Sulphur dioxide:
liquid, coml. cyl., wks. ...lb. .10 / .12
multi-unit cars, wks. ..... lb. .0535/ —

Talc, fibrous grd., bags:
c.l. wks., N.Y. .....ton 28.00 / —
l.c.l. wks., N.Y. .....ton 31.00 /36.00

Titanium dioxide:
anstase, c.l. dlvd. E. bags..lb. .25½/ —
l.c.l. dlvd. .....lb. .26½/ —
rutile, c.l. dlvd. .....lb. .27½/ —
l.c.l. dlvd. .....lb. .28½/ —



New Tall Oil Fractioning Unit

Commercial availability of Mersize fortified rosin size from tall oil rosin has been announced by Monsanto Chemical Company concurrently with the successful start-up of these tall oil refining facilities owned jointly by Monsanto and Emery Industries, Inc. in Nitro, W. Va. Capable of processing 3,000 tons of crude tall oil monthly, the facility separates out all of the fatty acids for Emery, yields high-quality pale rosin for Monsanto.

R. T. Keller
Bailey Meter

L. A. Valmore
Lockport Felt

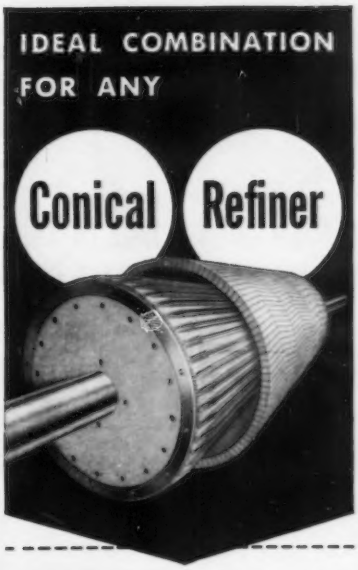
Bailey Meter Co., Cleveland, Ohio, has appointed R. T. Keller a resident engineer in Jacksonville, Fla., subdivision of the company's Atlanta district. Mr. Keller's headquarters are at 1422 Dancy Street, Jacksonville, Fla.

Lockport Felt Co. has appointed Lawrence A. Valmore, who has been a technical service representative for Lockport since early 1955, as its sales representative in the Penn-Jer-Del territory. Mr. Valmore will replace Russell E. Grey who was killed in an accident at his home on April 10.

Nopco Chemical Co. has named Robert J. Kingsley to the newly created position of general sales manager for the Pacific Division.

John W. Bolton & Sons Inc. have announced an agreement in which C. Itoh & Co. will be the sales representatives in Japan and East Asia for Bolton and the Emerson Manufacturing Co. Division of Lawrence, Mass. One of the largest machinery importers in Japan, C. Itoh & Co. has branch offices throughout the world.

Crane Co., in a major reorganization of its sales division, has named William B. Gilmour general manager of merchandising, and Darrell R. Nordwall general manager of sales.



Jones Adapta-Plug

The completely bandless plug for *all* Jordans, the Jones Adapta-Plug is also the strongest, most adaptable, most economical plug ever made.

This revolutionary advance, exclusive with Jones, not only holds bars more securely, reduces slot wear and corrosion, but also cuts hours from the job of stripping and filling.

Before you replace another Jordan plug — ask your Jones representative about Adapta-Plug — or write us direct.

Jones FULBAR SHELL FILLINGS

Fulbar Shell Fillings eliminate keys and wedges. One piece construction fits shell body of any Jordan, simplifies handling, cuts installation time. And the patented No-wave pattern — also exclusive with Jones — has no sharp bar-ends to form strings or lumps.

For improved quality, more economical, trouble-free operation — make your next Jordan filling a FULBAR.

Rigid, one-piece FULBAR easily accommodates to inequalities in shell body of old, worn Jordans — is simpler to install, easier to grind in.

E. D. JONES & SONS COMPANY
Pittsfield, Mass.
In Canada: The Alexander Fleck, Ltd., Ottawa
BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

G. Kleinman

T. R. Elmblad

Whiting Corp. has transferred George Kleinman from its Houston district office to the district office at Charlotte, N. C. Mr. Kleinman joined Whiting in 1949. He was transferred to Houston in 1953 as an engineer specializing in Swenson chemical processing equipment.

Thomas R. Elmblad, formerly of Whiting's Chicago district office, has been transferred to the district office at Pittsburgh, Pa. He joined Whiting in 1951 as a draftsman in the Swenson Division. In 1955 he was assigned to the sales force of the New York office specializing in Swenson chemical processing equipment.

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E. A. Alvord
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H. C. Miller
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Sprout, Waldron & Co. has transferred E. A. Alvord from Meridian, Miss. to Olympia, Wash.

Mr. Alvord's experience includes a variety of responsibilities for the U. S. Gypsum Co. and the Flintkote Co.

John W. Bolton and Sons, Inc. and the Emerson Manufacturing Co. Division have appointed Henry C. Miller process engineer, Western Sales Region.

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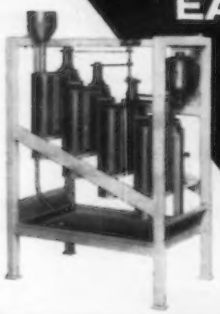

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HEADQUARTERS FOR PROGRESS

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A. S. Hamley
Pittsburgh Piping

C. Hartig
Reinhold-Gould

Pittsburgh Piping and Equipment Co. has appointed Arthur S. Hamley Jr. general manager of sales and Willard S. Mershon assistant general manager of sales. Mr. Hamley, who succeeds the late Harry Zinkil, started at Pittsburgh Piping in 1929 and was assistant general manager of sales prior to his appointment to the new position. Mr. Mershon joined the company in 1953.

Reinhold-Gould Inc. announces that Charles Hartig, president of Gaillet & Hartig Co., Inc. has joined Reinhold-Gould in the capacity of vice president of Gaillet and Hartig Division.

G. H. Weight

J. H. Roach

W. C. Mohrman

Babcock & Wilcox Co. has promoted three men in the sales department of its Tubular Products Division. G. H. Weight, formerly Southwest district sales manager, has been made sales manager—middle states. His headquarters will be in Chicago. J. H. Roach, of the Houston, Tex., office, is named district sales manager of the Tulsa, Okla., office. W. C. Mohrman, of the Tulsa office, becomes district sales manager of the Houston office.

Hodag Chemical Corp., Chicago, has appointed Richard Anderson field engineer for the firm's antifoams, flocculating agents and other surface-active agents.

Pennsalt Chemicals Corp.'s industrial chemicals regional office, formerly located in the Alcoa Building, Pittsburgh, will move into new quarters at Natrona, Pa., August 4.

John C. Hampson, newly appointed regional manager, replacing William P. Snelsire who has retired, will be in charge of sales activities for Pennsalt organic and inorganic chemicals.

Pennsalt will also move to Natrona the sales, research and development units of the corrosion engineering products department. The department's corrosion resistant products for the construction and industrial maintenance markets are currently manufactured at the Natrona plant.

Robert R. Pierce, recently named manager of the coordinated department in charge of sales, manufacturing and research and development; James H. Cogshall, recently appointed corrosion engineering products sales manager; and Robert S. Mercer, new manager of development will also move to Natrona address.

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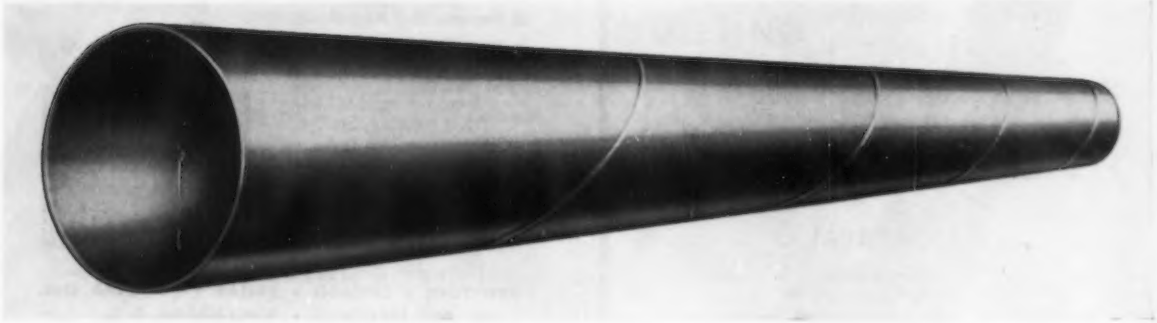

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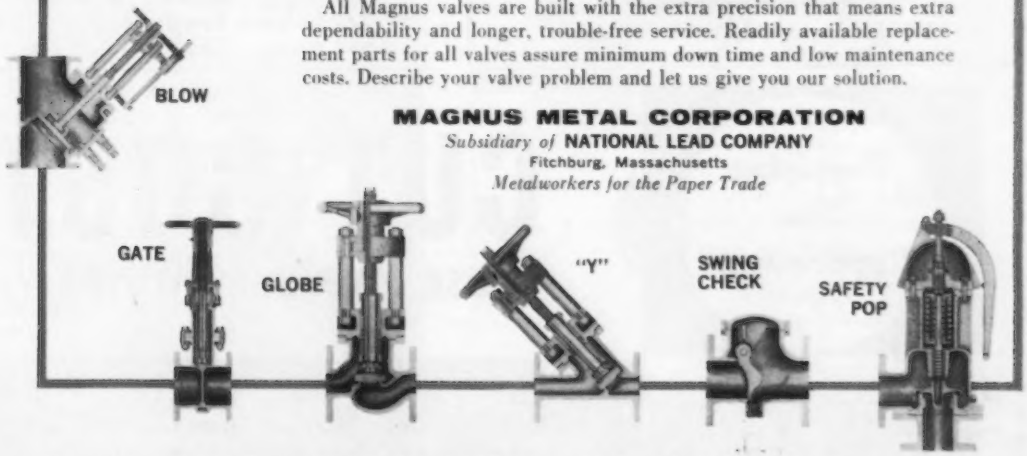

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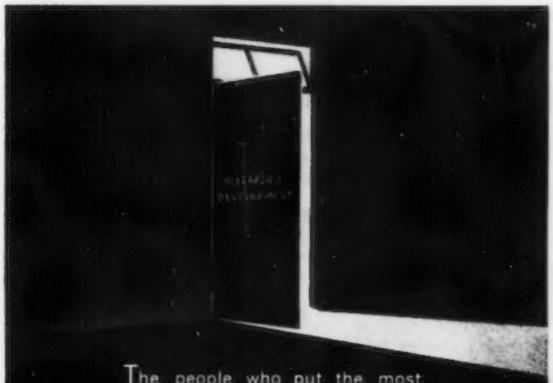

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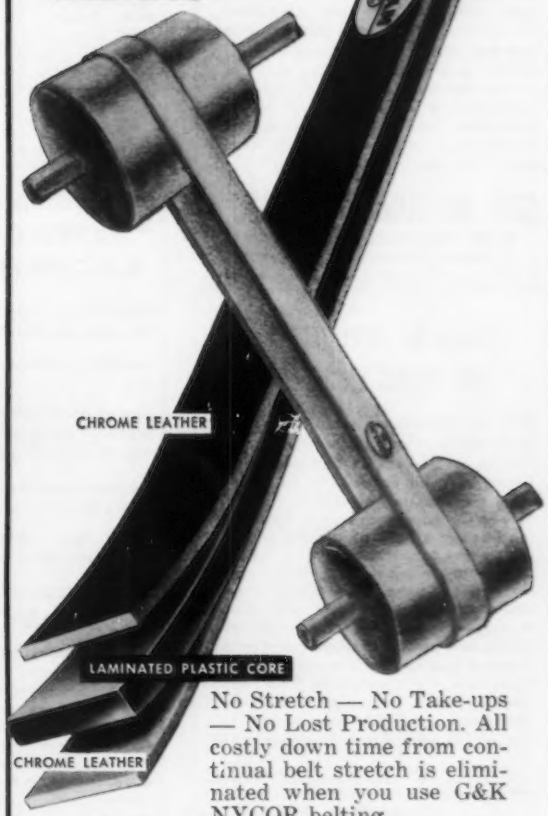

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1— 60" Hamblet w/backstand
1— 64" Hamblet w/overlapping layboy & backstand
1— 65" Kidder Spot Sheeter w/elec. eye
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2—H-4 Nash w/10 hp motors
1—L-4 Nash
1—L-5 Nash
1—H-8 Nash
1—#3 Nash w/25 hp motor
6—#2, #3, #6, & #8 Nash Hytors
1—7 x 10 Connersville

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2— 86" Valley Iron Works
1—144" B & S high speed w/headbox; SS clad
1—156" New Valley w/36" headbox; monel lined

YANKEE DRYERS
1—132" face x 10' dia Beloit; 35 psi
1—140" face x 12' dia Beloit; 75 psi

WAXERS & COATERS
1— 54" Mayer w/motor
2—62" Mayer w/motors
1—65" Mayer w/drive
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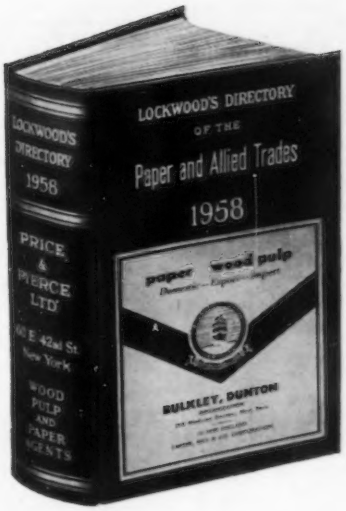

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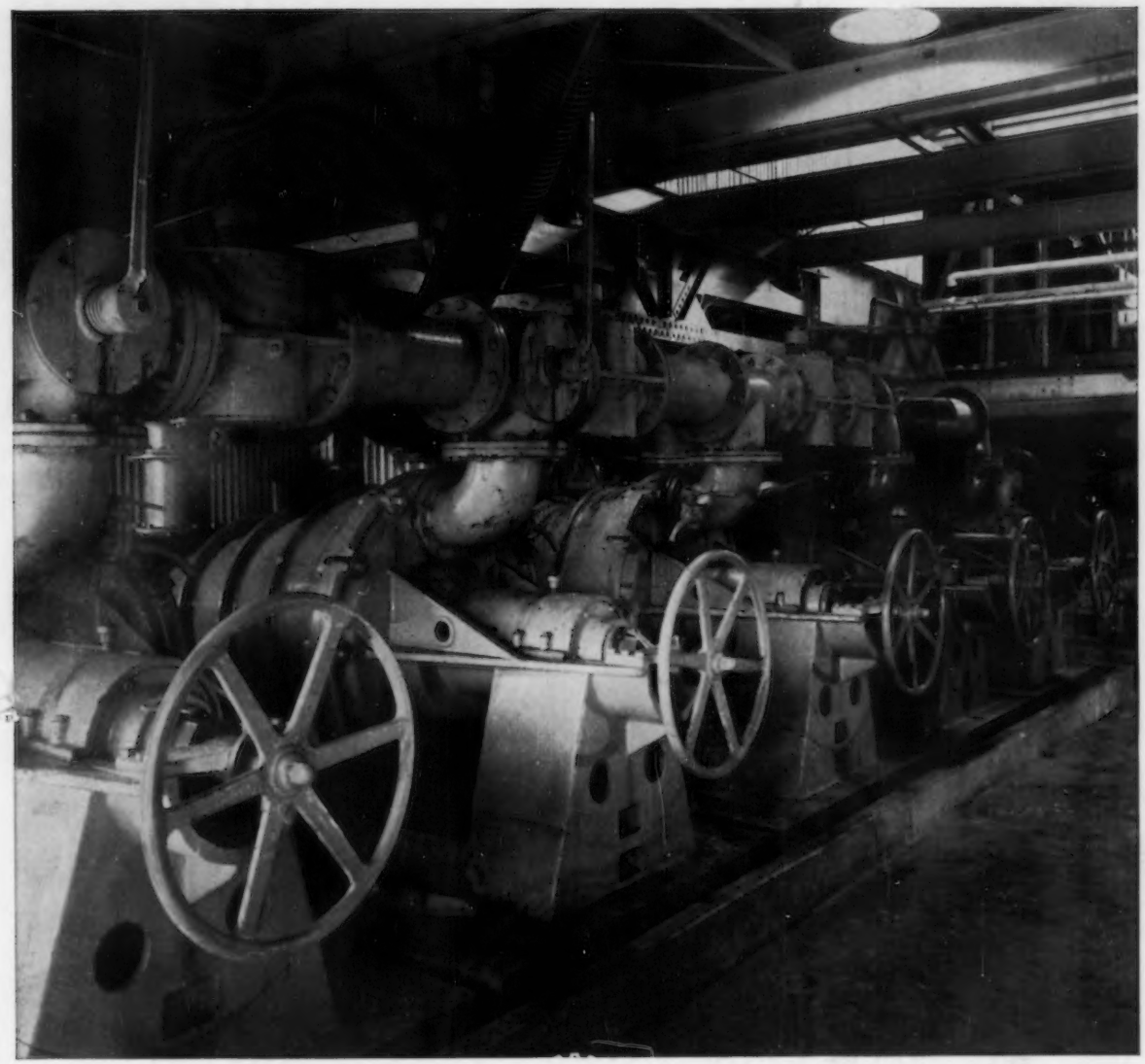

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